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AN ANALYSIS OF THE REGULATORY ASPECTS OF FUEL OIL SUPPLY

FOSTER ASSOCIATES, INC.

PREPARED FOR
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A study was conducted to review the current regulatory picture affecting the supply and distribution of natural gas and low sulfur fuel oil, to analyze possible changes in this regulatory picture, and to appraise alternate regulatory strategies which could bring about increased supplies of these clean-burning fuels. The results of the study are contained in two separate reports, one report for natural gas and the other for fuel oil. Also, abridged copies of the two comprehensive reports are provided.

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by

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CHAPTER I - INTRODUCTION

The fundamental objective of this study is to assist the Environmental Protection Agency in finding ways to increase the nation's supply of pipeline quality gas and low sulfur fuel oil for stationary utilization, by reference to government regulation which attend these fuels.

This report deals only with the regulatory situation pertaining to the supply of low sulfur fuel oil. The gas portion of the study was submitted in March 1973.

In this study, Foster Associates first reviews the current regulatory picture affecting the supply and distribution of low sulfur fuel oil. Second, possible changes in this regulatory picture are analyzed. Finally, alternate regulatory strategies which could bring about increased supplies of these clean-burning fuels are appraised.

The contents of this report are current as of January 1973.

CHAPTER II - CONCLUSIONS AND RECOMMENDATIONS, LOW SULFUR FUEL OIL

One of the most important regulatory influences on crude oil and fuel oil supply in the United States in recent years has been MOIP (Mandatory Oil Import Program), which, among other things, has in conjunction with state prorationing held domestic oil and most product prices well above world levels and has guaranteed a market for at least part of any oil discovered. Whether this has led to a really substantially greater supply of domestic oil has been widely debated, but it is certain that domestic supply is at least significantly greater than it would have been without it. MOIP, obviously, has not resulted in adequate fuel oil supply right now, especially on the East Coast but also in the Middle West and the Gulf Coast as well. MOIP is discussed in depth in Chapter IV, page IV-1. Also important has been state and federal leasing of oil properties, which has led to very large oil discoveries in Alaska and substantial discoveries in the U.S. Gulf (see Chapter III, Section B-2, page III-10). Of current importance but relatively little historical influence is the Economic Stabilization Program (see Chapter III, Section C-9, page III-22).

Overriding the domestic low sulfur fuel oil situation later in the 1970's is the impending crisis of excessive dependence on imported energy, especially oil. Foreign oil imports are rising rapidly, as are foreign oil prices. The amount we will be paying for foreign oil unless we change our course becomes very large, even in just a few years, and the balance of payments outflow which results is enormous. Also, our dependence on foreign oil becomes so great as to pose critical national security as

well as supply security risks. In our view, this crisis of dependence on foreign oil is the worst of all the energy crises we face as a nation -- balance of payments consequences alone will soon become almost intolerable.

What this crisis of dependence on foreign oil means is that later in this decade, although not necessarily very much later, we will have to change our course in energy and develop adequate additional domestic supply to keep foreign dependence within bounds. Since there is a long lag time in most measures which would achieve adequate domestic supply, and since we have not yet changed our course, there is likely to be a period in the late 1970's when we do not have enough domestic energy, and cannot tolerate importing enough energy (mainly as oil) to meet projected needs. This is, in our view, what will ultimately limit low sulfur fuel oil supply (as well as supply of all petroleum products) later in the 1970's.

Short term (to about the end of 1975), we think the optimal regulatory changes which would tend to increase supply of low sulfur fuel oil are:

1. Raise domestic low sulfur fuel oil price ceiling permitted under Phase III to encourage domestic manufacture of low sulfur fuel oil (Phase III does not control price of imports).

2. Adopt a "bonus" and/or "drawback" plan under MOIP to encourage domestic manufacture of low sulfur fuel oil in Districts I-IV.

3. Remove import restrictions on low sulfur fuel oil in Districts II-V under MOIP.

4. Offer import ticket bonuses under MOIP for newly discovered domestic crude oil and for domestic crude oil which would otherwise be uneconomic to produce.

Of course, the regulatory agencies involved would be the Cost of Living Council for higher prices, and the Oil Policy Committee for the rest.

The amount of low sulfur fuel oil which would be immediately forthcoming with these measures is likely to be small.

The additional domestic low sulfur fuel oil generated by these measures in a year or two may also, unfortunately, be small, though imports into Districts II-V might become significant.

Longer term (from about 1976 on), we think the optimal regulatory changes which would tend to increase supply of low sulfur fuel oil include all the short term measures except removing import restrictions (item 3), plus the following:

1. Accelerate offshore leasing.

2. Limit or reduce imports of low sulfur fuel oil, but on a specified long term phased in basis.

Accelerating federal offshore oil (and gas) property leasing will increase crude and potential fuel oil supply, and probably at relatively low cost compared with other domestic options.

Longer term, unfortunately, using import tickets as incentives to increase low sulfur fuel oil manufacture and to increase crude oil reserves may not be very successful due to the great uncertainty in the longer term value of these tickets.

We did not include letting crude oil prices rise substantially under Phase III (or its successor), because this option does not appear to be politically viable. Letting crude oil prices rise across the board, compared to specified incentives for newly discovered oil or oil that would not otherwise be economic, does not appear consistent with solving the currently critical problem of inflation. A specific, controlled increase in price of a single product such as low sulfur fuel oil which is needed to meet pollution control objectives is not in the same category. Given the likelihood of strong inflationary pressures in the U.S. for the foreseeable future, it is hard at this time to see any Administration permitting large increases in domestic crude oil prices across the board.

Barring a large domestic crude price increase, the quantity of low sulfur fuel oil generated longer term by all of the regulatory measures above will likely be limited by availability of domestic crude oil, and availability of domestic crude oil will not be much affected by these measures. As noted above, if we do not alter our present course on domestic oil, and this is, in our view, mainly a legislative matter, the availability of low sulfur or any other fuel oil may be very limited indeed later in this decade.

Optional regulatory changes are discussed in Chapter VI, Sections A and B, with a general discussion of regulatory means of increasing low sulfur fuel oil supply given in Chapter V.

It is apparent that the regulatory options for increasing low sulfur fuel oil supply are very limited. In our view, it is mainly up to Congress to provide the incentives and the stable investment climate to develop the domestic oil base needed to assure availability of low sulfur fuel oil. Although legislative options were beyond the scope of this study, this subject is discussed briefly in Chapter V, Section E, page V-27.

Nevertheless, we think EPA can make a significant contribution to increasing low sulfur fuel oil supply long term by doing the following:

1. Encourage and support legislation now which will eventually increase domestic oil supply. Optimal legislation from the standpoint of both developing low sulfur fuel supply and political viability would seem to be selective new incentives (a) to develop new or otherwise uneconomic oil, and (b) to develop supplemental oil supply from shale and/or coal. Selective new incentives are differentiated from across the board incentives which would increase prices on oil already discovered.

2. Use the influence of EPA as an independent agency to publicize the environmental tradeoffs involved in running short of low sulfur fuel oil versus increasing our domestic oil supply.

3. Use the influence of EPA to try to achieve the goals of environmentalist groups with minimal court or other delay of domestic oil projects.

4. Use the influence of EPA to tell the story of environmental consequences of domestic energy measures in a balanced and level headed manner, rather than letting the extremists and alarmists of the environmental movement dominate the scene.

There is some additional discussion of these points in Chapter VI, Section C on page VI-5.

CHAPTER III - REGULATORY BODIES AFFECTING THE SUPPLY OF OIL

The purpose of this chapter is to identify, and briefly describe, the role of the principal state and federal regulatory agencies which affect the supply of oil in the United States.

The legal systems of the world as they treat oil may be divided into two groups: (1) those in which the underground petroleum belongs to the owner of the surface; and (2) those in which all subsurface minerals belong to the nation as a whole, rather than the owner of the surface. The former is representative of the United States, while the latter is representative of most of the oil producing nations of the world.

This multiple individual ownership of a vital national resource has led to a multiplicity of governmental agencies that attempt to influence policy regarding all facets of the industry. The remainder of this chapter is a listing of the various state and federal organizations that influence, regulate, or contribute to oil policy. It should be noted that not all of the listed agencies choose to exercise the perogatives of their office to the fullest extent. Moreover, many of the agencies listed are interested in a single aspect of the total industry. Still, it is an unwieldy number of agencies with some obvious overlapping of interests and functions. This situation underscores the need to establish a single policy-making body not just for petroleum but all energy-producing resources. This is, of course, an obvious suggestion to improve our energy situation.

A. Background Information

Before getting further into the regulatory aspects of low sulfur fuel oil supply, some background information may be helpful to readers who are not familiar with the oil industry.

Oil is discovered in the ground by drilling wells, then additional wells are generally drilled to develop the discovery. Generally, gas is discovered with oil, and is produced with it. Or, gas may be discovered instead of oil. The "crude oil" from the wells moves to refineries for conversion into finished products and finally moves to the customer through gasoline service stations, etc. The movement of petroleum and its products is by pipeline, tanker, barge, and/or truck. The major segments of the industry are, thus, exploration, production, refining, and marketing, and these are linked together by transportation.

In its details, the oil industry has become very complex indeed. Its great size -- each man, woman, and child in the United States consumes an average of more than three gallons per day of petroleum products -- and its vital contribution to practically every segment of all developed economies has very much entangled the industry in both domestic and international politics.

The United States for many years was totally or nearly self-sufficient in oil. However, in the late 1950's, cheap foreign oil became available in almost unlimited quantities (compared to relatively much lower consumption at the time), and in 1959 the Mandatory Oil Import Program (MOIP) was established to preserve the domestic industry in the

interest of national security. This program is discussed in depth later in this study.

We are now, as a nation, however, in the situation where domestic production of oil has peaked out -- we have no surplus capacity, and aside from the North Slope of Alaska, no major new source of conventional oil is in sight. Domestic demand is, nevertheless, continuing its inexorable rise, so our foreign dependence is skyrocketing. By 1975, we are likely to be about 50%[1/] dependent on foreign petroleums, and over 60%[1/] by 1980, barring massive new action to change this trend. It is true that the U.S. does have options in the form of supplemental ("synthetic") oil from shale or coal, but, again, barring massive new programs they will not contribute much by 1980.

There are currently two problems relating to oil in domestic refining. One is an actual shortage of physical domestic capacity, which will not really be upon us for perhaps a year or two, and the other is lack of utilization of capacity already in place. The product supply problem was felt this winter in distillate, with a very tight supply situation and some actual shortfalls in meeting needs. The reasons for lack of utilization of available domestic capacity are several, one of which is a temporary shortage of crude oil particularly for inland refineries.

Crude oil as it comes from the well generally contains a wide range of components ranging from those that are gaseous at ordinary conditions to black solids. Ideally, crude oil is nearly pure hydrocarbon.

1/ National Petroleum Council "U.S. Energy Outlook" December 1972, page 262, Case IV, with 1980 adjusted slightly by Foster Associates.

However, most crude oil also contains impurities that must be partly or totally removed before use. Particularly important is sulfur, which if not removed will pollute the atmosphere when the oil is finally burned. Some crudes, such as much of Venezuelan oil, have high metals content, which makes sulfur removal much more difficult. Typically, crude oils contain nitrogen and other chemically combined impurities as well as sulfur. Also, crude oils generally are physically contaminated with water, salt, and sediment which must be removed in refining. Crude oil from different areas varies widely in composition and impurities content.

Crude oil, its components, and its products are generally classified according to their range of boiling temperature. Products such as gasoline, with lower boiling ranges are generally described as "light," while high boiling range materials such as residual fuel oil are referred to as "heavy." Light products are "clean," a residual oil, where the term residual means that it has not been distilled, is generally "dirty." Heavy products are generally more viscous than light, and may be solid at ordinary conditions.

The term "fuel oil" generally includes both "distillate" and "residual" fuel oils. Distillate, as the term is commonly used, is a clean, distilled oil that is heavier than gasoline. It is also called No. 2 oil, and generally includes both home heating oil and diesel fuel. Distillates are typically free flowing liquids except in extreme cold conditions. Residual fuel oil, which is often called No. 6 oil, contains undistilled "bottoms," and is generally a heavy, viscous, dirty product that ordinarily has to be heated to be used. Residual fuel oil is used for such things as

electric power generation, large industrial boilers, ships bunkers, etc. The sulfur content of distillate is generally quite low. If it is not, it is relatively simple to process it to a low sulfur content. On the other hand, sulfur and metals in crude oil tend to concentrate in residual fuel. Therefore, a high sulfur crude oil will generally yield an even higher sulfur residual fuel oil unless a special desulfurizing step is added to refining. And, metals also concentrate in residual fuel, so a high metals, high-sulfur crude oil will be particularly costly to refine into low sulfur residual fuel oil because metals interfere with the desulfurization step.

Distillate is generally considered a premium product vs. residual oil -- distillate can often be used in place of residual but the reverse is not the case. The term "gas-oil" generally refers to a refinery intermediate -- a semi-refined product that is heavier than gasoline.

The amount of any product that can be made from a given crude oil depends on refining facilities available. The relative value of the products will determine the actual product mix at a refinery. Generally, the more sophisticated refineries typical of the United States versus the rest of the world offer more flexibility in product mix. However, there is not total flexibility in product mix -- usually crude oil contains light (more volatile) components not suitable for fuel oil but usable for gasoline or other products. Therefore, most refineries have to make some other products besides fuel oil. There is generally not a lot of flexibility in the amount of distillate than can be made in a refinery, even with substantial changes in processing. On the other hand, residual fuel

oil capability is more flexible, and processing can be varied to vary residual yield over a wide range. This is in large part because residual specifications are less stringent, and if one wants to put more valuable components into residual fuel it can be done within broad limits. In fact, with some modifications of storage and facilities, it is possible to burn whole crude oil in installations designed for residual fuel oil, and this is practiced in some parts of the world, especially Japan.

The U.S. oil industry consists of the following major segments:

1. The large international oil companies.
2. The large domestic oil companies.
3. Independent producers.
4. Independent refiners.
5. Independent distributors and marketers.

The first two groups together account for most of the domestic refining, marketing, and transportation operations in the U.S. and account for most of the producing. Independent producers sell about one-third of the oil produced in the U.S. Domestic gasoline marketing is dominanted by the large companies in the sense that they own most of the gasoline stations and use their brand names. The degree of integration of functions varies for the large companies, but most are substantially integrated.

The oil industry is also characterized by massive investment requirements in all phases of the business. It is also an industry of long lead times -- the time between the initiation of an exploration program and the first oil coming to market is generally in the two to five year range, and for engineering efficiency reasons, it generally takes in

the range of 10 to 25 years or even longer to produce the recoverable oil[1/] in a given field. The lead times for building refineries, pipelines and tankers are generally measured in the one to five year range, depending mainly on the size of the project. The consequence is that it is not easy to change direction quickly in this business. We are now realizing the consequences of past actions, and we will in the rest of this decade and beyond reap the consequences of action or inaction now.

Federal and local government have an unusually large influence on the oil industry. The federal government, among other things, regulates oil imports through MOIP, gives special tax treatment to oil producers (depletion allowance and intangible writeoff), regulates interstate transportation of oil, and controls leasing federal property. State governments, particularly in Texas and Louisiana, influence oil production through conservation and "market demand pro-rationing" laws. The latter has been a subject of much controversy in the past, but has now become academic because these states are operating at essentially 100% of productive capacity.

B. State Regulation

The supply of oil is affected by three types of state control: conservation regulations, the leasing of lands, and local ordinances regarding land zoning and building permits. At the present time, neither of the first two types of state regulation can be said to hamper supply. However, to the extent which public opposition in coastal states has been able to block leasing, drilling, construction of deepwater terminals and

1/ Generally, the maximum amount of oil that can be economically recovered in a given field amounts to only in the order of one-third or so of all the oil in the ground.

refineries on environmental grounds, intrastate regulation can be said to affect supply.

1. Conservation Regulation

Virtually all producing states exercise a variety of conservation regulations aimed at preventing the physical waste of oil and gas. Another purpose is to protect the correlative rights of property owners. The regulations relate, among other things, to well completion techniques and equipment; spacing of wells; limitation of production to reasonable market demand; allocation of allowable production to pools and among wells in a pool; secondary recovery operations; and protection against land and water pollution as a result of oil and gas drilling and production.

State conservation laws date from 1878 when Pennsylvania passed the first statute dealing with the casing and plugging of individual wells. More comprehensive regulation developed in the early 1930's when excess supply became a chronic problem in the major oil producing states and crude prices dropped sharply. Large new discoveries, especially in Oklahoma and Texas, aggravated the marketing chaos. For example, following the huge oil discovery in East Texas in 1930, the price of oil dropped from $1.30/bbl. to 10¢/bbl. Voluntary agreements among operators in some of the more prolific fields met with little success, and martial law had to be imposed on occasion in Texas and Oklahoma to control the deteriorating situation.

During the 1930's the principal oil producing states established regulatory bodies, or assigned responsibility to existing regulatory bodies, to control the overproduction of oil and the reduced ultimate

recovery of oil that would go with it. In Texas, for example, the controlling agency is the Texas Railroad Commission which meets monthly for the purpose of establishing the allowable number of producing days for the following month. This prorationing of productive capacity is really a quota system for the producer based on short range market demand estimates of the industry. Prorationing measures were also adopted in other producing states with capacity in excess of requirements.

However, prorationing is not a factor in the current fuel shortage because excess productive capacity no longer exists. In the two principal producing states, Texas and Louisiana, monthly allowable production of oil has been authorized at maximum efficient producing rates[1/] of the wells for several months (with the exception of a few fields held to lower rates because of reservoir problems, the need to avoid flaring of associated gas or certain other reasons). Three other states (Oklahoma, Kansas and New Mexico) have been producing essentially at 100% -- or more -- of maximum efficient well rates for two or more years.

The need for a better understanding of the causes of waste, and a knowledge of the effective legal remedies in which all oil producing states should be interested, was also a prime factor leading to the creation of the Interstate Oil Compact Commission. Established by Congress in 1935 and ratified initially by only six states, the IOCC is now supported by 29 states with two additional states having associate membership. Representatives from the Federal Power Commission and the Departments of Defense,

1/ The maximum rate at which oil can be produced without excessive decline or loss of reservoir energy. If rate is exceeded, lower ultimate recovery of oil will result.

Interior and Justice are welcomed as observers. The goal of the IOCC is "to conserve oil and gas by the prevention of physical waste thereof, from any cause."[1/]

The IOCC is not a regulatory body and must rely upon persuasion as a means for accomplishing its purpose. This is done by developing and disseminating information relating to effective conservation methods. Meetings, open to the public, are held twice yearly during which conservation problems are discussed in special reports and studies prepared by various standing and special committees. These materials are then published and made available for all who are interested in the conservation of oil and gas.

2. Leasing Authority

Producing states all have authority to lease state lands. In general, leases are awarded at public auction to parties offering the highest cash bonus, and provide for a fixed royalty to the state on all oil and gas produced.

In some states, royalties from production on state lands are a significant source of state revenue. In Texas, for example, certain state agencies own substantial producing acreage, and the income is used to support the educational system of the state. The same is true in New Mexico which owns about 9 million acres of lands.

The State of Alaska represents a somewhat special situation. Among other things, the amount of state-owned lands in known petroleum

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1/ Statement from original Compact to Conserve Oil and Gas in 1935.

producing basins is many times larger than that of any other state. In addition to offshore lands covered by the Submerged Lands Act of 1953, Alaska was granted the right to select about 103 million onshore acres of land from the Federal Domain by the Alaska Statehood Act of 1959. During the early and mid-1960's, Alaska selected about 28 million acres, including that portion of the Arctic Slope where the Prudhoe Bay Field was subsequently discovered in 1968. Selection of the remaining 75 million acres is presently still in abeyance due to a freeze imposed by the Federal Govenrment in 1966 on further cessions of land to the state (and further leasing of federal lands) pending settlement of Alaskan native land claims.

In September 1969, the State of Alaska held the largest lease sale in U.S. history (until the last federal lease sale in the Gulf of Mexico in December 1972), receiving nearly $900 million in bonus money for 450,000 acres in the Prudhoe Bay area. A large part of this acreage had previously been offered for sale by Alaska in 1964 and 1965 -- prior to the Atlantic Richfield and Humble discovery in 1968 -- but received no bids at that time. A drawback to immediate further leasing of North Slope acreage is the continuing uncertainty over the proposed trans-Alaskan pipeline and the lack of market outlets until that or some other pipeline is built.

In general, a basic objective of the states in the past has been to lease lands in order to maximize revenues. Except perhaps for local situations, there has been little pressure to restrict leasing and development of potential oil and gas lands. Recently, however, environmental considerations -- the threat of oil spills in particular -- have caused state legislatures in various West and East Coast states to seek to halt or ban leasing and drilling activities on certain offshore lands.

On the West Coast, environmental concern in California dates back to 1955 when, as a result of conservationist pressure, the state created an offshore marine sanctuary out to the three-mile limit and for 16 miles along the Santa Barbara coast.[1/] However, in the ensuing years, California leased nearly all state offshore lands outside the sanctuary between the Ventura County line and Point Conception, as well as other submerged lands off its coast.

In early 1969, after a major oil spill on a federal lease in the Santa Barbara Channel, the State of California declared a moratorium on well drilling in all waters under its jurisdiction. Several operators have applied in recent months to conduct further drilling on state leases in an attempt to end the ban. In support, they stress major improvements since 1969 in techniques and equipment to contain and clean up any oil spill which might occur, as well as a greatly improved capability to drill in offshore areas with little risk of accident. Given the development of these techniques, they contend that further prohibition of offshore drilling is indefensible, especially in view of California's critical need for oil and gas supplies. Nevertheless, the State Lands Commission - while permitting some sidetracks (wells bottomed less than 100 feet from the original hole) and some redrills (wells bottomed more than 100 feet from the original hole) -- has thus far granted permits for the drilling of only two new wells (both infill development wells).

1/ Cunningham-Shell Tideland Act, Section 6871.2, California Public Resources Code (1955).

Moreover, in the City and County of Los Angeles where large oil and gas pools (both offshore and onshore) are located, public opposition to recent applications for drilling permits in coastal areas has been intense. For example, it took many months of effort before Occidental Petroleum finally won permission from the Los Angeles City Council in October 1972 to drill a well in the Pacific Palisades area near the coastline -- this permission having first been denied in an action reversed by Mayor Yorty.

On the East Coast, similar pressures are now building up against offshore leasing and drilling. For example, in New York, several bills were introduced in the State Legislature during the past year to ban oil and gas well drilling in the Atlantic Ocean off Long Island and/or adopt other measures aimed at environmental protection of offshore lands.[1/] Two of these bills were passed last spring by both houses of the New York Legislature but subsequently vetoed by Governor Nelson Rockefeller. One bill would have prohibited the leasing of any offshore lands for oil or gas extraction within three miles of the New York coastline (or such other boundary as may be ultimately determined to be subject to state jurisdiction). In vetoing this bill, Governor Rockefeller stated that the nation's growing energy needs may make it desirable to permit drilling off New York shores at

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1/ From a geological standpoint, the sedimentary structures of greatest interest in the Atlantic offshore area are substantially seaward of the three-mile limit generally applied to state lands. However, the Original Thirteen States presently have a suit pending in the U.S. Supreme Court before a Special Master claiming that, under their original charters from England, their marine boundaries extend as far as 100-200 miles from their coastline.

some future time, and that the State Commissioner of Environmental Conservation has adequate powers to insure that any such drilling will be consistent with the need to protect the state's marine sanctuaries and recreational areas.

The second bill passed by the New York Legislature authorized the adoption of regulations for the protection of marine fishery resources within a distance of 200 miles from the New York coastline or to a depth of 100 fathoms, whichever is the greater. This bill was vetoed by the Governor in view of current litigation concerning the reach of national and state jurisdiction over territorial waters.

As indicated in another section, environmental opposition to federal sales of offshore oil and gas lease sales has been a cause of delay in petroleum development in the past few years. Opposition of the more vocal conservationist groups has been widely publicized. The above-described recent experiences in California and New York illustrate that, on a state level as well, public opposition on environmental grounds poses a significant barrier to the development of offshore hydrocarbon supplies.

3. Zoning and Building Permits

State and local officials have the right to impose restrictions on private property, and these restrictions are accomplished through local zoning ordinances. Generally, areas are divided into residential, commercial and industrial zones. In recent years, local courts have upheld zoning restrictions for reasons of public health, safety, general welfare or aesthetic purposes.

Port and terminal facilities, and frequently also refining facilities (refineries require sizeable amounts of fresh water during processing), are located on or near water. The dearth of available waterfront property, inland and coastal, has been well documented. From a siting standpoint, this problem has been compounded by attacks on the industry in the public news media emphasizing only the polluting aspects of oil. The net result has been a delay in the construction of new facilities. In the face of protests from the environmentally concerned, local officials have yielded to protests and refused the necessary zoning and/or building permits for energy producing facilities. Significantly, the State of Delaware in 1971 passed a law prohibiting the building of any new refinery or superport within that state.

C. Federal Regulation: Executive Office of the President

On the federal level, oil supply is influenced by several councils or other bodies within the Executive Office of the President, by at least seven Executive Departments and by a number of independent agencies. The more important of the various organizations, together with a rough outline of the organizational structure, are depicted on the chart following this page.

Within the Executive Office of the President, the Office of Emergency Preparedness and, more recently, the Oil Policy Committee have a major role in policy decisions which can affect the supply of oil and oil

A

FEDERAL GOVERNMENT ORGANIZATIONS DEALIN

COST OF LIVING COUNCIL

-Monitors voluntary system of price controls to assure consistency with national goal to hold back inflation

COUNCIL ON ENVIRONMENTAL QUALITY

-Influences petroleum policy in that the manufacture and transportation of petroleum affects the environment

OFFICE OF THE SPECIAL REPRESENTATIVE FOR TRADE NEGOTIATIONS

-Negotiates tariff on oil and oil product

NATIONAL SECURITY

-Considers the petroleum aspe
mental policies related to
-Reviews studies showing the
nation to provide for gas
in time of national emergen

DOMESTIC COUN

-Composed of the President,
several members of the Cabi
-Council may form Ad Hoc Co
experts
-Enables the President to re
urgent domestic problems

COUNCIL OF ECONOMI

-Chairman also chairs Subco
Energy of the Domestic Coun
member of the Oil Policy Co

DEPARTMENT OF TRANSPORTATION

-National Transportation Safety Board conducts investigations of accidents involving petroleum or gas in pipelines or other modes of transport
-U.S. Coast Guard enforces the Oil Pollution Act in joinder with the Bureau of Customs

DEPARTMENT OF THE TREASURY

-The Secretary may influence petroleum policy as a member of the Council on International Economic Policy, Domestic Council or as a member of the Oil Policy Committee
-The Bureau of Customs collects all information regarding oil importation for the SESA; 2/ acts as the field policing agent in the implementation of the oil allocation licenses issued by the Office of Oil and Gas (Interior); and assists the U.S. Coast Guard in the enforcement of the Oil Pollution Act which prohibits the discharge of oil and refuse upon coastal waters.

DEPARTMENT OF STATE

-The Secretary may influence oil policy as a member of the National Security Council and the Oil Policy Committee
-Maintains Petroleum Attaches in the embassies of the major oil producing and consuming nations
-Office of Fuels and Energy within the Bureau of Economic Affairs coordinates departmental activities and policies pertaining to petroleum and petroleum products
-Participates in negotiations with National Energy Board of Canada regarding level of oil to be imported into Districts I-IV

DEPARTMENT OF DEF

-The Secretary of Defense may i
policy as a member of the Dom
Policy Committee or Council on
Economic Policy
-The Special Assistant for Petr
Office of Assistant Secretary
and Installations acts as DOD
programs, systems and procedu
available petroleum products
of war or peace
-Defense Fuel Supply Center is
the procurement of fuels for
civilian agencies, coordinates
bulk petroleum by military, a
DOD import allocation issued b
Oil and Gas (Interior)

DEPARTMENT OF THE

-The Secretary influences oil p
of the Foreign Trade Zone Boar
-Corps of Engineers designs and
petroleum storage, distributio
systems; water resources devel
of oil transport on intercoast
proposed development of super

DEPARTMENT OF THE

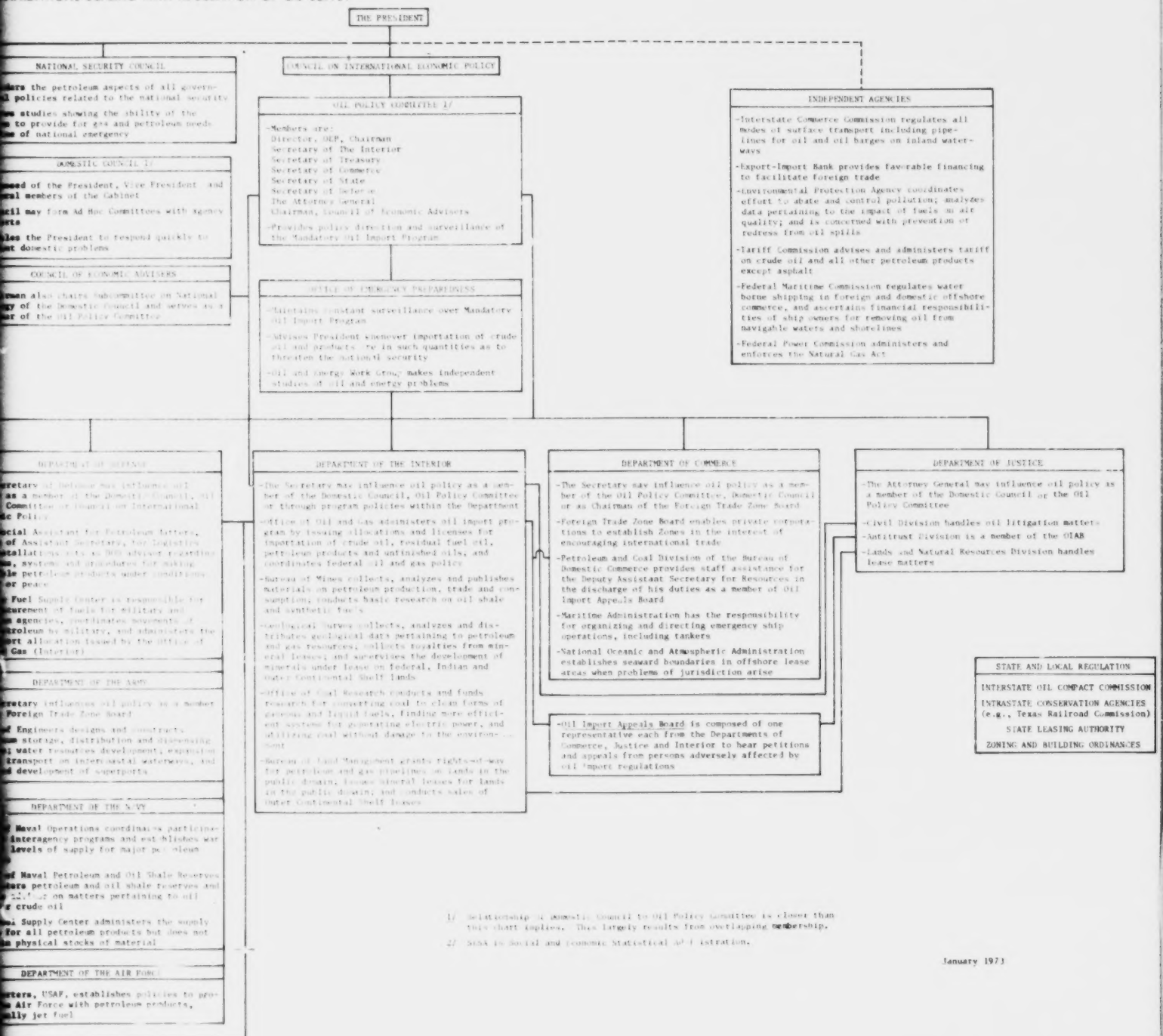
-Chief of Naval Operations coo
tion in interagency programs
reserve levels of supply for
product;
-Office of Naval Petroleum and
administers petroleum and oil
acts as advisor on matters per
shale or crude oil
-Navy Fuel Supply Center admin
system for all petroleum prod
maintain physical stocks of

DEPARTMENT OF THE AI

-Headquarters, USAF, establish
vide the Air Force with petrol
principally jet fuel

111-150

ANIZATIONS DEALING WITH REGULATION OF OIL SUPPLY


THE PRESIDENT
NATIONAL SECURITY COUNCIL
ders the petroleum aspects of all governi policies related to the national security
e studies showing the ability of the to provide for gas and petroleum needs e of national emergency
COUNCIL ON INTERNATIONAL ECONOMIC POLICY
OIL POLICY COMMITTEE 1/
-Members are:
Director, OEP, Chairman
Secretary of The Interior
Secretary of Treasury
Secretary of Commerce
Secretary of State
Secretary of Defense
The Attorney General
Chairman, Council of Economic Advisers
-Provides policy direction and surveillance of the Mandatory Oil Import Program
INDEPENDENT AGENCIES
-Interstate Commerce Commission regulates all modes of surface transport including pipelines for oil and oil barges on inland waterways
-Export-Import Bank provides favorable financing to facilitate foreign trade
-Environmental Protection Agency coordinates effort to abate and control pollution; analyzes data pertaining to the impact of fuels on air quality; and is concerned with prevention of redress from oil spills
-Tariff Commission advises and administers tariff on crude oil and all other petroleum products except asphalt
-Federal Maritime Commission regulates water borne shipping in foreign and domestic offshore commerce, and ascertains financial responsibilities of ship owners for removing oil from navigable waters and shorelines
-Federal Power Commission administers and enforces the Natural Gas Act
OMESTIC COUNCIL 1/
ead of the President, Vice President and al members of the Cabinet
cil may form Ad Hoc Committees with Agency rts
les the President to respond quickly to t domestic problems
COUNCIL OF ECONOMIC ADVISERS
man also chairs Subcommittee on National y of the Domestic Council and serves as a er of the Oil Policy Committee
OFFICE OF EMERGENCY PREPAREDNESS
-Maintains constant surveillance over Mandatory Oil Import Program
-Advises President whenever importation of crude oil and products are in such quantities as to threaten the national security
-Oil and Energy Work Group makes independent studies of oil and energy problems
DEPARTMENT OF DEFENSE
retary of Defense may influence oil as a member of the Domestic Council, Oil Committee or Council on International ic Policy
ecial Assistant for Petroleum Matters, of Assistant Secretary, for Logistics stallations acts as DOD advisor regarding m, systems and procedures for making le petroleum products under conditions or peace
Fuel Supply Center is responsible for curement of fuels for military and n agencies, coordinates movements of troleum by military, and administers the ort allocation issued by the Office of Gas (Interior)
DEPARTMENT OF THE INTERIOR
-The Secretary may influence oil policy as a member of the Domestic Council, Oil Policy Committee or through program policies within the Department
-Office of Oil and Gas administers oil import program by issuing allocations and licenses for importation of crude oil, residual fuel oil, petroleum products and unfinished oils, and coordinates federal oil and gas policy
-Bureau of Mines collects, analyzes and publishes materials on petroleum production, trade and consumption; conducts basic research on oil shale and synthetic fuels
-Geological Survey collects, analyzes and distributes geological data pertaining to petroleum and gas resources; collects royalties from mineral leases; and supervises the development of minerals under lease on federal, Indian and Outer Continental Shelf lands
-Office of Coal Research conducts and funds research for converting coal to clean forms of gaseous and liquid fuels, finding more efficient systems for generating electric power, and utilizing coal without damage to the environment
-Bureau of Land Management grants rights-of-way for petroleum and gas pipelines on lands in the public domain, issues mineral leases for lands in the public domain, and conducts sales of Outer Continental Shelf leases
DEPARTMENT OF COMMERCE
-The Secretary may influence oil policy as a member of the Oil Policy Committee, Domestic Council or as Chairman of the Foreign Trade Zone Board
-Foreign Trade Zone Board enables private corporations to establish Zones in the interest of encouraging international trade
-Petroleum and Coal Division of the Bureau of Domestic Commerce provides staff assistance for the Deputy Assistant Secretary for Resources in the discharge of his duties as a member of Oil Import Appeals Board
-Maritime Administration has the responsibility for organizing and directing emergency ship operations, including tankers
-National Oceanic and Atmospheric Administration establishes seaward boundaries in offshore lease areas when problems of jurisdiction arise
-Oil Import Appeals Board is composed of one representative each from the Departments of Commerce, Justice and Interior to hear petitions and appeals from persons adversely affected by oil import regulations
DEPARTMENT OF JUSTICE
-The Attorney General may influence oil policy as a member of the Domestic Council or the Oil Policy Committee
-Civil Division handles oil litigation matters
-Antitrust Division is a member of the OIAB
-Lands and Natural Resources Division handles lease matters
DEPARTMENT OF THE ARMY
retary influences oil policy as a member Foreign Trade Zone Board
Engineers designs and constructs m storage, distribution and dispensing i water transfer development, expansion transport on interstate waterways, and development of superports
DEPARTMENT OF THE NAVY
Naval Operations coordinates participa interagency programs and establishes war levels of supply for major petroleum
Naval Petroleum and Oil Shale Reserves ure petroleum and oil shale reserves and on matters pertaining to oil crude oil
Supply Center administers the supply for all petroleum products but does not n physical stocks of material
DEPARTMENT OF THE AIR FORCE
ters, USAF, establishes policies to pro- Air Force with petroleum products, lly jet fuel
STATE AND LOCAL REGULATION
INTERSTATE OIL COMPACT COMMISSION
INTRASTATE CONSERVATION AGENCIES (e.g., Texas Railroad Commission)
STATE LEASING AUTHORITY
ZONING AND BUILDING ORDINANCES

1/ Relationship of Domestic Council to Oil Policy Committee is closer than this chart implies. This largely results from overlapping membership.

2/ SOSA is Social and Economic Statistical Administration.

January 1973

products. However, petroleum supply is also influenced in varying degrees by the activities of several other offices as well.[1/]

1. Office of Emergency Preparedness[2/]

The Office of Emergency Preparedness (OEP) is the successor to the Office of Defense Mobilization (ODM) which was created by the Defense Production Act of 1950. Under that Act, OEP was given responsibility for development of emergency plans; for coordination of military, industrial and civilian mobilization, including programs and policies for the effective use of the nation's material and industrial resources in the time of war; and for the direction of short supplies to meet essential national defense needs, including the allocation of production and distribution facilities.

Various trade acts in the 1950's provided that the Director of OEP, either on the request of another agency or on his own motion, advise the President whenever, in his opinion, an article was being imported into the United States in such quantities or under such circumstances as to threaten

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1/ The description in the following pages of organizations within the Executive Office of the President affecting the supply of oil is applicable at the date of submission of this report (end of January 1973). However, the lineup of organizations is now subject to change as a result of a Reorganization Plan submitted by President Nixon to Congress on January 26, 1973. Among other things, the Reorganization Plan -- which becomes effective July 1, 1973 unless overruled by either the House or Senate -- would abolish the Office of Emergency Preparedness and the Office of Science and Technology.

2/ Under the Reorganization Plan submitted by the President to Congress on January 26, 1973, the Office of Emergency Preparedness would be abolished. Its activities relating to investigation of oil imports which might impair national security would be transferred to the Department of Treasury, while other functions would be shifted to the General Services Administration and the Department of Housing and Urban Development.

to impair the national security -- with the President thereafter authorized to adjust imports or take other remedial measures deemed necessary to remove this threat.[1/] Acting pursuant to Section 8 of the Trade Agreement Extension Act of 1958, the OEP Director reported to the President on February 27, 1959 as follows:

> "Finally, it is apparent to me that in the current world over-supply situation, excessive quantities of low-priced oils from offshore sources are seeking a U.S. market. In such a situation, without control of production in relation to demand by the countries of origin, it is to be expected that there would be substantial economic incentives to increase imports into the United States.
>
> "The consequences would continue to upset a reasonable balance between imports and domestic production, with deleterious effect upon adequate exploration and the development of additional reserves which can be generated by a healthy domestic production industry.
>
> "Accordingly, as a result of my investigation pursuant to Section 8 of the Trade Agreement Extension Act of 1958, I advise you of my determination that crude oil and principal crude oil derivatives and products are being imported in such quantities and under such circumstances as to threaten to impair the national security." [2/] [3/]

The above finding by OEP preceded Presidential Proclamation 3279, dated March 10, 1959, which established the Mandatory Oil Import

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1/ This authority is currently embodied in Section 232 of the Trade Expansion Act of 1962. Pursuant to this Section, the Director of OEP -- upon a finding of threat to the national security and absent a contrary determination by the President -- may himself take action to adjust imports. OEP and the President are directed to consider, among other things, domestic production needed to meet projected national defense requirements, the capacity of domestic industries to meet such requirements, the close relation of the nation's economic welfare to national security, and the impact of foreign competition on the economic welfare of individual domestic industries.

2/ OEP report to the President, dated February 27, 1959.

3/ Oil is the only commodity as to which OEP has ever made a finding that imports threatened to impair the national security.

Program. As part of that Proclamation, the Director of OEP was directed to maintain a constant surveillance of imports of petroleum and its primary derivatives in respect to national security and to inform the President of any circumstance which, in the Director's opinion, might indicate the need for further Presidential action. Such surveillance was to include a determination of whether any increases in the prices of crude oil or its products occurring thereafter were necessary to accomplish the national security objectives of the Proclamation.

In addition to this surveillance function as to the national security aspects of oil imports, the Director of OEP presently acts as Chairman of two important inter-agency committees: the Oil Policy Committee and the Joint Board on Fuel Supply and Fuel Transport. The Oil Policy Committee was established by the President on February 20, 1970 -- following a report by a Cabinet Task Force Committee created the previous year to study the oil import program -- to provide overall policy direction, coordination and surveillance of the oil import program.

The purpose of the Joint Board on Fuel Supply and Fuel Transport is to identify emergency problems in fuel supply and fuel transport and to coordinate prompt and appropriate remedial action by federal agencies. The members of this Board are the Secretaries of Interior and Commerce, and the Chairmen of the Council of Economic Advisers, Council on Environmental Quality, Interstate Commerce Committee, and Federal Power Commission. The Board is also assisted by representatives of agencies concerned with a particular problem under consideration. In addition, OEP has established Field Boards to help implement the decisions of the Joint Board, and to

assist with fuel and energy problems at the local level. The Field Boards are composed of field representatives from selected departments and agencies, and the OEP Regional Office Director who coordinates the activities of the federal and state governments and works with industry representatives during fuel, power and other resource emergencies.

The Director of OEP is also a member of the Domestic Council Subcommittee on the National Energy Situation -- formed on July 20, 1970 to develop possible federal programs and/or activities for alleviating fuel shortages and insuring an adequate fuel supply for the next five years.

Recently, the OEP has established an Oil and Energy Working Group, which makes independent studies on oils and energy problems for the Director of OEP. This is a continuing group which may, from time to time, ask assistance from other departments and agencies.

Finally, the OEP has instituted a program for obtaining pricing information from residual fuel oil importers on a monthly basis. This information is then released to the public.

2. Oil Policy Committee

As noted, the Oil Policy Committee was established shortly after release of the final report by the Cabinet Task Force on Oil Import Control in February 1970. The Committee is charged with the policy direction, coordination and surveillance of the oil import program. At present, it is the principal oil policy formulation body in the Federal Government. While responsibility for the administration of the oil import program

remains with the Secretary of the Interior, all Interior regulations dealing with oil imports must be cleared with the OPC.

Members of the Oil Policy Committee include the Secretaries of Interior, Defense, State, Commerce and Treasury, the Attorney General, the Chairman of the Council of Economic Advisers, and the Director of OEP. The last acts as Chairman.[1/] Normally, observers sit in the Committee from the White House and the Office of Management and Budget. The interrelationships of the Oil Policy Committee to the Domestic Council (discussed later) is substantial, largely due to overlapping membership.

The Committee has met a few times a month since its formation. However, a working group chaired by the OEP representatives and including members of all principal participants in the OEP meets continuously and, from time to time, sets up sub-groups to work on specific oil problems such as low sulfur residual fuel oil, No. 2 fuel oil, petrochemicals, etc. The working group performs all the detail work in conjunction with oil import problems. It obtains assistance from other agencies and bureaus as needed.

3. Council of Economic Advisers

The Council of Economic Advisers consists of three members appointed by the President. The Chairman of this Council also chairs the Domestic Council's Subcommittee on the National Energy Situation and serves as a member of the Oil Policy Committee.

1/ Under the Reorganization Plan proposed by President Nixon on January 26, 1973, the Deputy Secretary of the Treasury would replace the Director of OEP as Chairman of the Oil Policy Committee.

4. Domestic Council

The Domestic Council is composed of the President, Vice President, Attorney General, the Secretaries of Agriculture, Commerce, Health, Education and Welfare, Housing and Urban Development, Interior, Labor, Transportation and Treasury, the Director of the Office of Management and Budget, the Chairman of the Council of Economic Advisers, and such other persons as the President may designate. This Council enables the President to respond quickly to urgent domestic problems. The Council may form ad hoc committees with agency experts and other departmental staff support.

5. Office of Science and Technology[1/]

The purpose of this office is to provide the President with advice and assistance in the development of policies and coordination of programs to assure the effective use of science and technology in the interest of national security and the general welfare. OST includes an Energy Policy Staff whose function is to study means of coordinating the government-wide energy matters.

6. Council on Environmental Quality

The Council, consisting of three members appointed by the President, formulates and coordinates government activities which promote the improvement of the quality of the environment. It influences petroleum policy in that the manufacture and transportation of petroleum products affect the environment.

1/ The Office of Science and Technology would be abolished under the Reorganization Plan submitted by President Nixon on January 26, 1973. The primary role for coordinating governmental science policy would go to the National Science Foundation.

7. Office of Management and Budget

The Office of Management and Budget controls the funds for all agencies. It also participates as an observer in oil policy formulation through the Oil Policy Committee. Finally, as part of its function to coordinate federal statistical services, OMB approves all statistical and reporting forms relating to administrative record keeping for government programs concerned with oil.

8. National Security Council

The National Security Council, consisting of the President, Vice President, Secretaries of State and Defense, and the Director of OEP, is primarily concerned with domestic, foreign and military policies that relate to the national security. In this regard, the Council reviews studies assessing the ability of the nation to provide for gas and petroleum needs in time of national emergency. It also considers the petroleum aspects of all governmental policies related to the national security.

9. Cost of Living Council

The Cost of Living Council (COLC) was first established by Executive Order 11615, issued August 15, 1971, which imposed a 90-day freeze on prices, rents, wages and salaries. The COLC was charged with primary responsibility for administering the price-wage freeze program.[1/]

1/ The legal authority for imposition of this initial program -- plus subsequent phases thereof -- was the Economic Stabilization Act of 1970 which granted the President authority to issue and enforce regulations over prices, wages and rents to control inflation. The Act, originally scheduled to expire on April 30, 1972, was extended by Congress for one year to April 30, 1973. The President has recently requested another one-year extension to April 30, 1974.

The 90-day freeze (which ended November 13, 1971) was followed by Phase II of the Economic Stabilization Program which imposed mandatory price (and wage) controls on most sectors of the economy. In Phase II, the COLC was given responsibility for establishing overall goals and providing policy guidance. However, the formulation and implementation of specific criteria to govern price adjustments in particular industries was delegated to the Price Commission. The Price Commission, created by Executive Order 11627 of October 15, 1971, consisted of seven public members appointed by the President on October 22, 1971. At the same time, a 15-member Pay Board was established to develop standards for wage and salary increases.

Phase II of the Economic Stabilization Program was replaced by Phase III on January 11, 1973. As of that date, the President (Executive Order 11695) terminated the mandatory price-wage controls in effect in Phase II for all but a few sectors of the economy and substituted instead a "self-administering" system of price restraints based on voluntary compliance. The COLC was directed to oversee this program and given authority to establish mandatory standards if considered necessary to assure that future actions in a particular industry are consistent with the national goal of reducing the rate of inflation to 2.5% or less in 1973. Both the Price Commission and Pay Board were abolished.

Under the latest Executive Order, the COLC presently consists of -- in addition to the Secretary of the Treasury who serves as Chairman -- the Secretaries of Agriculture, Commerce, Labor, Health, Education and Welfare and Housing and Urban Development, the Director of the Office of

Management and Budget, the Chairman of the Council of Economic Advisers, the Director of OEP, the Special Assistant to the President for Consumer Affairs, and such other members as the President may designate from time to time. The Director of the COLC, appointed by the President, is also a member of the Council.

During the approximately 14 months of the Phase II period, the prices of crude oil and major petroleum products -- such as gasoline, No. 2 fuel oil, and residual fuel oil -- were effectively held by the Price Commission to their levels during August of 1971. These restrictions are considered to have had a considerable impact on petroleum supply, particularly the supply of No. 2 fuel oil which, in the particular base period, was priced fairly low relative to gasoline and other refinery products. Accordingly, refineries were reluctant to increase their distillate yields without an increase in the price of No. 2 fuel oil. This is a major reason ascribed for the development of No. 2 fuel oil shortages in the current winter.

The effect of Phase III of the Economic Stabilization Program on heating oil and other petroleum prices is not yet clear. The general price standard prescribed by the Cost of Living Council is that prices may be increased after January 10, 1973 to reflect increased costs, so long as no increase results in the seller's base period profit margin. Alternatively, a seller may increase prices by a weighted annual average of 1.5% over those in effect on January 10, 1973 to reflect increased costs without limitation as to profit margin. A further provision states that: "Adjustments in excess of the [above] standard may be made only as necessary

for efficient allocation of resources or to maintain adequate levels of supply."

This last provision -- allowing for adjustments "as necessary for efficient allocation of resources or to maintain adequate levels of supply" -- was recently interpreted by George Lincoln, outgoing Director of the OEP, as lifting price controls on No. 2 fuel oil. Several companies have recently announced price increases for this product, apparently taking a similar view. However, no opinion has yet been expressed by the COLC on this matter.

Also, the effect of the new voluntary price control program on crude oil and other petroleum prices is unclear at this time.

10. Office of the Special Representative for Trade Negotiations

This office consists of three persons with ambassadorial rank and a professional staff. It is responsible for directing the U.S. participation in, and supervision of, negotiations and agreements with other countries. The tariff on oil and oil products is negotiated by this office.

D. Federal Regulation: Executive Departments

At least seven departments within the Executive Branch affect some aspect of petroleum supply. Some -- such as Interior, State, Defense, and Commerce -- obviously have a greater impact than others. Nevertheless, others can and do play a substantial role. The description below[1/]

1/ No attempt has been made to identify every office within every Department with some function pertaining to oil.

illustrates the diffusion of responsibility within the present Federal Government structure for formulation and administration of policies and activities relating to the supply of oil.

1. Department of Interior

The Interior Department exerts a major impact on oil supply through its administration of the Mandatory Oil Import Program, leasing and administration of public lands, and through a variety of other programs as well.

a. The Office of Oil and Gas administers the oil import program. In so doing, it issues import licenses annually to eligible companies, issues amendments as appropriate to the Oil Import Regulations, and conducts a surveillance and field inspection program to make sure that companies are complying with the MOIP. In addition, OOG publishes monthly reports showing volume of imports by type (crude-unfinished oil, No. 2 fuel oil, residual fuel oil, and shipments received from Puerto Rico) and the name of the company making the importation or shipment. Yearly, OOG publishes a compilation of the country of origin of imports by type, volume and district of importation, including Puerto Rico.

In administering the MOIP, OOG obtains assistance from, among others, the Bureau of Mines which forecasts needs for domestic crude petroleum production in Districts I-IV to aid in setting the level of imports for these districts. It also forecasts the supply-demand gap for District V which is used as the basis for setting import level in that district.

The MOIP, and its administration, are described in greater detail in the next chapter.

b. The Bureau of Land Management issues mineral leases (oil, gas and oil shale) for lands in the public domain, as provided for in the Mineral Leasing Act, the Acquired Lands Act, and the Outer Continental Shelf Act.

Under the Mineral Lands Leasing Act of 1920, leases are granted both by competitive bidding and by a simultaneous filing system. The latter is used in areas where research or exploration is required before the presence of minerals can be anticipated. Competitive bidding is required when land is within the known geologic structure of a producing oil or gas field prior to the issuance of a lease.

Under the Outer Continental Shelf Act of 1953,[1/] all oil and gas leases are issued on a competitive bidding basis. The present system involves cash bonus bidding by sealed bids, plus payment of a fixed royalty (set at 16-2/3% for all OCS leases issued to date.) Since passage of the OCS Act, BLM has conducted 26 sales of offshore oil and gas leases, including 12 drainage sales (in proven areas) and 14 general sales (in unproven areas).

1/ The OCS Act provided for federal jurisdiction over the submerged lands lying seaward of those granted to the states. The latter had been generally determined by the Submerged Lands Act of May 22, 1953, which gave the coastal states jurisdiction over such lands to a distance of three miles from their coast lines into the Atlantic and Pacific Oceans and up to nine miles into the Gulf of Mexico if a state's historic boundary prior to joining the Union had been more than three miles from shore or if such a boundary had previously been approved by Congress. (The States of Florida and Texas are in this category.) However, to date, the boundaries of the federal and state segments of the OCS, and hence of the respective jurisdictions, have not yet been precisely defined. The seaward limits remain imprecise, and even the location of the shoreward boundaries is, in some cases (such as off Louisiana), still in dispute. Litigation is currently pending with respect to the jurisdictional limits of the Atlantic States, Florida, Louisiana, California and Alaska.

All sales have been in the Gulf of Mexico, except for six off California. The last sale was conducted on December 19, 1972 and netted the Federal Government nearly $1.7 billion in cash bonuses, a record high. In the aggregate, the sales have yielded the United States Government cash bonuses in excess of $6.7 billion.

In President Nixon's Clean Energy Message to Congress on June 4, 1971, the Secretary of Interior was directed to accelerate oil and gas leasing on the Outer Continental Shelf both in the Gulf of Mexico and in other promising areas, and to publish a five-year schedule of lease offerings. Pursuant to this mandate, Interior released a tentative five-year OCS leasing schedule contemplating 10 sales in the Gulf of Mexico through 1975 and public hearings on possible leasing in the Gulf of Alaska and Atlantic Ocean sometime prior to 1976. Some delay in this schedule has already occurred (due to court litigation brought by environmental groups), and BLM is currently updating and revising the leasing schedule. Present plans call for two general sales of 300,000 - 600,000 acres each per year over a five-year period in the Gulf of Mexico. Development of the acreage involved is estimated to require the drilling of 3,500 to 4,500 wells which, in turn, are estimated by Interior to result in an increase in crude oil reserves of 2.5 to 5.0 billion barrels and an increase in gas reserves of 20 to 40 trillion cubic feet. BLM also contemplates offering further

leases in the Gulf of Mexico if no sales of OCS lands in the Gulf of Alaska and the Atlantic region are held by 1976.[1/]

c. The Geological Survey regulates operating practices on federal oil, gas and oil shale leases. In addition, it is responsible for geological and geophysical exploration on OCS lands. Information provided by the Geological Survey, along with other information, is evaluated prior to leasing in order to identify promising acreage and appraise potential resources. In large part, the Geological Survey purchases geological and geophysical data from private surveyors. The Survey also collects the royalties from mineral leases and supervises the development of fuels and minerals under lease on Indian, OCS and other federal lands. The USGS maintains field offices throughout the United States which handle directly the mineral leases.

d. The Bureau of Mines collects, analyzes and publishes technical and economic materials on petroleum production, trade and consumption. The Bureau also conducts basic research on oil shale and synthetic fuels, advises other government agencies on fuel burning equipment, and disseminates information relevant to health and safety programs for the petroleum and gas

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1/ Two major roadblocks could possibly delay or, in certain areas, actually prevent future OCS oil and gas leasing. First, resolution of federal versus state jurisdictional disputes over offshore boundaries, or negotiation of interim zone arrangements, is necessary before major leasing actions can be undertaken. Second, opposition by conservation and environmentalist groups has already delayed leasing of OCS lands, and court suits to block further sales could cause additional delay. Legislation introduced in the last Congress suggests the probability of strong opposition in coastal states to any leasing of OCS lands in Atlantic offshore areas. In California, moreover, there is presently a moratorium on all offshore leasing, the result of public reaction following the widely publicized oil spill in the Santa Barbara Channel in January 1969.

industries. The Bureau of Mines, also has field offices and laboratories that handle petroleum matters.

e. The Bureau of Indian Affairs has trusteeship responsibility in the leasing of tribal lands and for the monies that are derived from oil and gas leases. These leases, however, are administered by the Geological Survey.

f. The Office of Coal Research conducts research directed toward developing processes for converting coal to clean forms of gaseous and liquid fuels, finding more efficient systems for generating electric power without pollution and utilizing coal in conventional form without environmental damage.

g. Office of Territories serves as the principal staff office for the Secretary on all territorial matters involving the Trust Territory of the Pacific Islands, Guam, American Samoa, and the Virgin Islands. The Virgin Islands is presently a major source of low sulfur fuel oil and is the location of a 400,000 bbls/d refinery operated by Amerada-Hess. In early January 1973, the local legislature of the Virgin Islands granted permission to the Italian national oil corporation (ENI) to build a second energy refinery. Guam has a 30,000 bbls/d refinery operated by Guam Refining Company.

h. The Oil Import Appeals Board of the Office of Hearings and Appeals is composed of one representative each from the Departments of Commerce, Justice and the Interior. This Board considers petitions and appeals from persons adversely affected by the oil import regulations. The Board is authorized to modify allocations granted by the Office of Oil

and Gas on grounds of hardship or error; to grant allocations for crude oil and/or finished products in special circumstances; and to review the revocation or suspension of any allocation or license. The decisions of the Board are final.

2. Department of State

The Secretary may influence oil policy as a member of the National Security Council or as a member of the Oil Policy Committee. This Department plays a very active role within the Oil Policy Committee and, in general, has supported the development of a strong and centralized U.S. energy policy, both domestically and abroad.

The Office of Fuels and Energy, within the Bureau of Economic Affairs, consists of principal foreign policy personnel who are responsible for coordinating departmental activities and policies in all matters pertaining to petroleum and petroleum products. In addition, Petroleum Attaches are maintained in the embassies of all major oil producing and consuming countries.

The Department takes an active interest in negotiations with the National Energy Board of Canada regarding the level of Canadian crude oil to be imported into Districts I-IV, as well as in negotiations aimed at formulating an acceptable overall energy policy with Canada.

3. Department of Defense

The Department of Defense (DOD) is a major contributor to U.S. oil policy, a sizeable importer of foreign oils (over 60,000 b/d) and a consumer of both domestic and foreign oils. (In fact, the military

purchased over 750,000 b/d of petroleum products in 1972.) The DOD through the Navy Department has responsibility for administering the Naval Petroleum Reserves in California and Alaska. The DOD is also responsible for the maintenance of a sizeable stockpile of petroleum products both inside and outside the U.S. Storage facilities are well dispersed throughout the world.

The Secretary of Defense influences oil policy as a member of the Oil Policy Committee and the National Security Council.

In the Office of the Assistant Secretary of Defense, Installations and Logistics, the Special Assistant for Petroleum Matters is the senior petroleum advisor in the Department regarding programs, systems and procedures for making available petroleum products under conditions of peace and war. He also acts as a coordinator with other concerned agencies and foreign governments with regard to petroleum policy.

The Joint Chiefs of Staff monitor the requirements for petroleum products in relation to strategic and logistic plans, and also provide policy guidance for the Joint Petroleum Office.

The Defense Fuel Supply Center (DFSC) within the Defense Supply Agency is responsible for the procurement of fuel, petroleum products and contracts for commercial petroleum services for the military and federal civil agencies. The Center coordinates the movements of bulk petroleum by the Military Sealift Command with the needs of the military services, and administers the oil import allocation to DOD issued by the Office of Oil and Gas, Department of the Interior. The DFSC also maintains stocks of

bonded fuel oil and jet fuel for use by the military in operations outside U.S. boundaries.

Moreover, within the Department of Defense, the Departments of Army, Navy and Air Force are vitally involved in matters of oil supply.

In the Department of the Army, the Secretary is a member of the Foreign Trade Zone Board, and the Deputy Chief of Staff for Logistics establishes policies and priorities regarding the allocation of petroleum products to installations throughout the world.

Other than the above, the most important oil-related agency in the Department of the Army is the Corps of Engineers which has responsibility for the design and construction of petroleum storage, distribution and dispensing systems at Army installations. The Corps is also responsible for water resources development activities, including river and harbor development and maintenance. More recently, the Corps has become involved in the proposed development of super-tanker ports within the U.S. and the expansion of oil transportation on the intercoastal waterways.1/

In the Department of the Navy, the Office of the Chief of Naval Operations provides logistic guidance for petroleum products for operating forces and shore establishments, coordinates participation in interagency petroleum programs, and establishes the war reserve levels of supply for the principal petroleum products. The Navy also maintains a sizeable tanker fleet for transporting oil for all the services.

1/ "Deep Water Port Policy Issues," Hearings before the Interior and Insular Affairs Committee, United States Senate, Serial No. 92-261, April 25, 1972.

The Office of Naval Petroleum and Oil Shale Reserves is responsible for developing and maintaining reserves for the production of petroleum and shale oil when required in times of national emergency, and also serves as the Department advisor on matters pertaining to oil shale and crude oil, domestic and foreign. The Navy has two sizeable oil reserves, one in Northern Alaska (Point Barrow) and the other at Elk Hills, California. The reserve at Elk Hills has been fully developed and is now maintained in a stand-by condition. The Elk Hills field is capable of producing over 100,000 bbls/d of crude oil. The Navy also has a large shale oil reserve in western Colorado.

The U.S. Navy Fuel Supply Center administers the supply system for all petroleum products but does not maintain physical stocks of material.

The Department of the Air Force is the predominant military user of petroleum, accounting for over 50% of all petroleum products purchased by the military. The principal product used by the Air Force is jet fuel.

Headquarters, USAF establishes policies to provide the Air Force with petroleum products.

Headquarters, Air Force Logistics Command is responsible for establishing requirements, and administering the distribution and quality surveillance of petroleum products.

4. Department of Commerce

The Secretary may influence oil policy as a member of the Oil Policy Committee, as a member of the Domestic Council or as Chairman of the Foreign Trade Zone Board.

The Office of Import Programs is the principal agency within the Department concerned with special problems involving industries affected by import competition. With regard to the Mandatory Oil Import Program, it participates at both staff and policy levels.

The Foreign Trade Zone Board consists of the Secretaries of the Treasury, Army and Commerce. The Secretary of Commerce serves as Chairman. The purpose of the Board is to enable private corporations to establish Foreign Trade Zones on U.S. soil in the interest of encouraging international trade.

The Bureau of Domestic Commerce is dedicated to the promotion of U.S. industry and commerce through business and governmental cooperation. The Bureau also develops plans for industrial mobilization in time of national emergency. Within the Bureau, the Petroleum and Coal Division provides information to individuals, governmental agencies, and industry relative to petroleum production, manufacture and consumption. The Division is particularly interested in petrochemicals; and it also furnishes staff assistance for the Deputy Assistant Secretary for Resources in the discharge of his duties as a member of the Oil Import Appeals Board.

The Maritime Administration is responsible for the development, promotion and operation of the U.S. Flag Merchant Marine. It also has the responsibility for organizing and directing emergency ship operations, including tankers. An additional function is to grant subsidies for the construction of tankers.

The National Oceanic and Atmospheric Administration was formed in 1970 from three agencies: National Weather Service, National Ocean

Survey and the National Marine Fisheries Service. One purpose of NOAA is to explore, map and chart the global oceans, and hence to establish seaward boundaries in offshore lease areas when problems of jurisdiction occur. With regard to climatological data, heating and cooling degree day statistics are published for a selection of U.S. cities and used to analyze local fuel requirements and conditions which produce fuel shortages, and to predict total fuel requirements (in conjunction with population and industrial projections).

The Office of Foreign Direct Investment administers and enforces Executive Order 11387 which established a mandatory system to restrict the dollar outflow for direct investments abroad in order to help correct the balance of payments deficit. These regulations apply both to individuals and to companies engaged in petroleum production and/or distribution.

5. Department of Justice

The Attorney General may influence oil policies as a member of the Domestic Council and also the Oil Policy Committee.

The Assistant Attorney General of the Civil Division handles all litigation in petroleum matters on behalf of the government.

The Assistant Attorney General in the Antitrust Division enforces the various statutes designed to prevent restraint of trade through monopoly or cartel and issues consent decrees for the merging of petroleum companies. This Division also furnishes one member of the Oil Import Appeals Board.

The Assistant Attorney General in the Land and Natural Resources Division establishes rights to mineral leases, and supervises suits to abate water and air pollution.

6. Department of the Treasury

The Secretary, as a member of the Oil Policy Committee, advises the Director of the Office of Emergency Planning on policies related to the oil import program. The Secretary may also influence petroleum policy as a member of the Domestic Council.

The Bureau of Customs enforces oil policy by acting as the field policing agent in the implementation of oil allocation licenses issued by the Office of Oil and Gas of the Department of the Interior. The Bureau also assists the U.S. Coast Guard of the Department of Transportation in enforcing the Oil Pollution Act which prohibits the discharge of oil and refuse upon coastal waters. The Bureau also collects all import information for the Bureau of Census.

7. Department of Transportation

The National Transportation Safety Board investigates accidents involving the transportation of petroleum or gas in pipelines or other modes of transport. This Office also undertakes special studies regarding pipeline safety and the transport of petroleum products.

The Federal Highway Administration compiles data pertaining to motor vehicle fuel consumption.

The U.S. Coast Guard enforces the Oil Pollution Act of 1961 together with the Bureau of Customs, U.S. Treasury Department.

E. Federal Regulation: Independent Agencies

In addition, the supply of oil is affected directly or indirectly by several independent agencies.

1. The Interstate Commerce Commission is an 11-member commission charged with regulating common carriers subject to the Interstate Commerce Act. Among other modes of surface transport, its jurisdiction extends to oil pipelines and water carriers such as barges on inland waterways.

2. The Export-Import Bank of the United States provides financing to facilitate the exchange of commodities such as crude oil and/or petroleum products between the U.S. and any foreign agency or individual. The favorable financing available through the Bank has been a contributing factor to the proliferation of oil refining facilities in the Caribbean.

3. The Federal Power Commission is charged with the administration and enforcement of the Natural Gas Act. Its activities are indirectly related to fuel oil. (This agency is discussed in detail in the gas portion of this study.)

4. The Environmental Protection Agency coordinates governmental efforts to abate and control pollution. EPA analyzes data pertaining to the effect of product quality, quantity, availability, demand and consumption, for the purpose of determining the impact of fuels upon air quality; and is responsible for protection and enhancement of the nation's waters, coastal and inland. EPA is also concerned with prevention and/or redress when oil is spilled during use, exploration, production, transport or storage.

5. The United States Tariff Commission consists of six members appointed by the President to serve as an advisory fact-finding agency on tariff, commercial property, and foreign trade matters. The Commission advises in regard to, and administers, the tariff on crude oil and all other petroleum products except asphalt. Currently (1972), the tariff on crude oil and most petroleum products in the most-favored nation is 10.5¢/bbl. if above 25 API gravity and 5.25¢/bbl if below 25 API gravity. For non-favored nations, the tariff is 21¢/bbl. regardless of API gravity.

6. The Federal Maritime Commission is composed of five members appointed by the President for the purpose of regulating water borne shipping in foreign and domestic offshore commerce. The Commission also administers those provisions of the Water Quality Improvement Act of 1970 concerned with oil pollution. With regard to oil spills, the Commission ascertains financial responsibilities of ship owners and operators for the costs of removing the oil from navigable waters and shorelines.

In addition, the Federal Maritime Administration polices the Merchant Marine Act of 1920 -- the so-called "Jones Act" -- which restricts foreign flag vessels from commerce on inland waters, as well as from coastal trade between U.S. ports, including the U.S. Territories and possessions. (A single exception pertains to trade with the Virgin Islands.) The Jones Act further stipulates that American flag vessels plying this trade must have been built and documented within the United States and owned by American citizens.

Originally, the rationale for the Jones Act was the need to develop and maintain a merchant marine fleet which could be used by the government during a national emergency. However, a major effect has been to place refiners on the Gulf Coast at a distinct disadvantage with foreign-based Caribbean refiners (including the refinery in the U.S. Virgin Islands) who can take advantage of the cheaper foreign flag tanker rates.

In recent years, several large refineries have been constructed in eastern Canada, the Bahamas and the Virgin Islands, and still more are scheduled to be built in those areas. Aside from the availability of deep-water harbors, a primary reason for these locations was the fact that products can be moved to U.S. markets in foreign flag ships. An additional factor is that MOIP, while regulating imports of crude and unfinished oils, does not control shipments of residual fuel oil to the East Coast area.

In some instances, certain American companies have registered tankers under a "flag of convenience," i.e., Panama, Liberia or Honduras. These tankers are owned, either directly or indirectly, by a subsidiary of the U.S. corporation. Some control over these vessels is maintained by a statute enabling the Secretary of the Commerce to requisition vessels when a state of national emergency is proclaimed by the President. From time to time, attempts have been made to amend the Jones Act and permit the "flags of convenience" to engage in commerce between the U.S. mainland and Alaska, Hawaii and Puerto Rico. However, in 1956, the Congress reaffirmed the principle of coastwise American shipping in Public Law 714, which made clear that even a vessel originally built in the U.S. but rebuilt abroad would lose the right to coastwise shipping.

CHAPTER IV - MANDATORY OIL IMPORT PROGRAM

The Mandatory Oil Import Program (MOIP), established by Presidential Proclamation 3279, is probably the most important Federal Government program affecting the supply of oil. As noted in the previous chapter, it was created in 1959 following an opinion by the Director of the Office of Defense Mobilization (now Office of Emergency Preparedness) that imports of crude oil and crude products at that time were such as to threaten to impair the national security. The MOIP is thus predicated on a national security rationale -- a basis which has been, and continues to be, a subject of considerable dispute both with respect to the overall program and to various aspects of its implementation.

At the present time, the policy direction of the MOIP is provided by the Oil Policy Committee -- an interdepartmental group which is chaired by the Director of OEP and includes the Secretaries of State, Treasury, Defense, Interior and Commerce, the Attorney General and the Chairman of the Council of Economic Advisers. The day-to-day administration of the program is performed by the Office of Oil and Gas within the Department of Interior. The Office of Oil and Gas succeeded the Oil Import Administration in this function.

For purposes of applying the MOIP, the U.S. is divided into five districts, plus Puerto Rico. These districts -- which correspond to the Petroleum Administration Districts (PADs) used in World War II -- are delineated on the map on the following page. Districts I-IV are mainly states east of the Rocky Mountains, while District V comprises mainly

COORDINATION DISTRICTS FOR PETROLEUM INDUSTRY

states west of the Rockies (including Alaska and Hawaii). In Districts I-IV, the only significant distinction in administration of the MOIP relates to residual fuel oil which is practically exempt from import controls in District I (East Coast). In District V, quotas are determined on a different basis than in Districts I-IV. Puerto Rico is also treated separately.

Commodity-wise, the MOIP classifies petroleum imports in four categories: (1) crude oil; (2) unfinished oils (products imported for further processing, such as naphtha); (3) finished products (products imported for use without further processing, such as No. 2 home heating oil, jet fuel, gasoline, lubricating oils and asphalt); and (4) residual fuel oil to be used as fuel. Levels of imports are fixed for each of these commodities in the various districts, with the authorized import levels then allocated among domestic claimants by the Interior Department.

The remainder of this chapter reviews the origin of the MOIP; modifications in MOIP over the years; the present general framework of the MOIP, including the basis for allocation of the different products and levels of imports in recent years; and treatment of residual fuel oil under MOIP.

A. Origin of Mandatory Oil Import Program

The present mandatory oil import program became effective on March 11, 1959, culminating a series of governmental actions looking toward the restriction of imports of oil into the United States.

In July 1954, the President established an Advisory Committee on Energy Supplies and Resources Policy to make a study on energy supplies

and resources "with the aim of strengthening the national defense, providing orderly growth, and assuring supplies for our expanding national economy and for any future emergency."

In February 1955, this committee reported that if crude and residual oil imports should significantly exceed the respective proportions that these imports bore to the production of domestic crude oil in 1954, "the domestic fuels situation could be so impaired as to endanger the orderly industrial growth which assures the military and civilian supplies and reserves that are necessary to the national defense." The Committee concluded that in the interest of national defense, imports should be kept in balance, and it proposed that this be done by voluntary, individual action of importers or those who become importers of crude or residual oil. The Committee made clear, however, that "appropriate action should be taken" if imports significantly exceeded the balance which it recommended.

On June 21, 1955, Section 7 of the Trade Agreements Extension Act of 1955 became law. This statutory provision required the Director of the Office of Defense Mobilization to advise the President whenever the Director had "reason to believe that any article is being imported into the United States in such quantities as to threaten to impair the national security." Following the receipt of such advice, the President was authorized to make an investigation and, if necessary, to adjust the imports of such article to a level that would obviate the threat.

In August 1955, the Director of ODM called the attention of oil importing companies both to the Trade Agreements Act of 1955 and to the

Advisory Committee's recommendations and, in effect, requested that imports be restricted in accordance with these recommendations. The Advisory Committee and the Director continued to keep the situation under surveillance and, on several occasions, issued warnings to importing companies with respect to the quantity of oil programmed for importation.

In December 1956, after hearings, the Director of ODM issued a statement that evidence presented at the hearing confirmed that imports in excess of the [Advisory] Committee's recommendations would threaten to impair the national security and that import programs recently filed with the Office of Defense Mobilization for the year 1957 would, if carried out, be contrary to the Committee's recommendations. However, because of the Suez crisis, the Director temporarily suspended action.

In April 1957, after the resolution of the Suez crisis, the President was advised by the Director of ODM that he had reason to believe that crude oil was being imported into the United States in such quantities as to threaten to impair the national security. The President thereupon asked the Director to investigate the possibility of limiting crude oil imports by individual voluntary action, and appointed a Special Cabinet Committee to Investigate Crude Oil Imports.

In July 1957, the Special Committee advised that a limitation on imports of crude oil was required in the interest of the national security, and recommended a plan for voluntary limitation of imports into the area east of the Rockies (Districts I-IV). For the initial phase of the program -- the last half of 1957 and the first half of 1958 -- the plan essentially involved a cut back in crude oil imports by established

importers to a figure 10% below the average of their imports for the years 1954, 1955 and 1956. The objective was to set a level of imports into the area east of the Rockies equivalent to approximately 12.0% of crude oil production in that area. The Special Committee did not propose voluntary restrictions on oil imports into District V at that time, primarily because the West Coast was a crude deficit area with imports needed to make up the balance between demand and available domestic supply, but recommended that the situation be reviewed during the latter part of 1957. The Special Committee also recommended that new importers should have an opportunity to enter and share in a reasonable manner in the United States market. The Committee's recommendations were approved by the President, and the Department of the Interior was chosen to administer the Voluntary Oil Import Program.

Over the following 12 months, the Special Committee made several further recommendations regarding the Voluntary Oil Import Program, including its extension to District V and various adjustments in the level of imports. In March 1958, to encourage compliance, the Buy American Act was incorporated in the program by Executive Order 10761. As a result of this action, companies which failed to comply with the program were ineligible to obtain government contracts for petroleum products.

In the latter part of 1958, it became evident that the Voluntary Oil Import Program was not accomplishing the desired purpose. This failure was attributed to the following factors: (1) the only penalty for failing to comply with the program was loss of government contracts;

(2) imports of finished petroleum products, which were not in the program, rose precipitously, thus throwing the crude program out of balance; (3) unfinished oils were stabilized at too high a level; and (4) there was no adequate means for permitting new comers to participate in the program.

On January 22, 1959, the Secretary of State and the Deputy Secretary of Defense requested the Director of ODM to investigate the effect upon the national security of imports of crude oil, its derivatives and products. On February 27, 1959, the Director reported to the President that, in accordance with this investigation, crude oil and the principal crude oil derivatives and products were being imported in such quantities and under such circumstances as to threaten to impair the national security.

On March 6, 1959, the Special Committee to Investigate Crude Oil Imports submitted a report to the President recommending imposition of mandatory controls on imports of crude oil and crude oil products (including liquefied petroleum gases, gasoline, kerosene, jet fuel, distillate fuel oil, lubricating oils, residual fuel oil and asphalt). In Districts I-IV, the Committee recommended that the level of imports of crude oil, unfinished oils and finished products (other than residual fuel oil to be used as fuel) be limited to 9% of total demand in those districts; that imports of finished products (exclusive of residual fuel oil) not exceed the 1957 level; and that imports of unfinished oils not exceed 10% of the total allocation of crude oil and unfinished oils. In District V, the Committee proposed that the level of imports of crude oil, unfinished oils and finished products be limited to that amount which, when added to domestic

production and supply, would approximate total demand in that District. Essentially similar limitations on imports of finished products and unfinished oils were recommended for District V as for Districts I-IV. The Committee further suggested that imports of crude oil and finished products into Puerto Rico should be limited to the level of imports during all or part of the year 1958. Finally, the Committee recommended that imports of residual fuel oil be set at their 1957 level in all five Districts, but also urged that the Secretary of the Interior keep such imports under review and be authorized to adjust the level of such imports on a monthly basis if necessary.

B. Establishment of and Changes in Mandatory Oil Import Program

On March 10, 1959, the President issued Proclamation 3279 which, in substance, ordered into effect the Special Committee's recommendations for the establishment of mandatory oil import controls, including the Committee's proposed maximum import levels. The Secretary of Interior was directed to issue regulations creating a system for allocating authorized imports of crude oil, unfinished oils and finished products and for the grant of licenses pursuant to such system. With respect to crude oil and unfinished oils, the Proclamation specified that allocations be made to companies with refinery capacity on the basis of refinery inputs during a particular period (except that initially no company having inputs during the base period would receive less than 80% of its last allocation under the Voluntary Oil Import Program), and that imported crude and unfinished oils be processed in the licensee's refinery -- except that exchanges could be made for domestic crude or unfinished

oils, again if processed in the licensee's refinery. (Import allocations or licenses may not be sold or transferred by the authorized importer to any other person.) As to finished products, the Proclamation provides for allocations to companies which imported such products during the respective base periods.

In addition, Proclamation 3279 established an Oil Import Appeals Board -- to be comprised of one representative each from the Departments of Interior, Defense and Commerce -- with power, on the ground of hardship, error or other relevant special consideration, to (1) modify any allocation granted to any company, (2) grant allocations of crude oil and unfinished oils in special circumstances, and (3) review the revocation or suspension of any license.

The MOIP has been modified by the President 23 times in the 14 years since its inception. These modifications are listed in the schedule on the following pages. In addition, the implementing regulations of the Secretary of the Interior have been revised and amended some 70 times. In general, the modifications have provided for changes in the level of allowable imports; changes in the treatment of Canadian imports; the inclusion of "newcomers" and other new groups (such as petrochemical plants) in the program; the grant of special allocations allegedly to promote the economic development of Puerto Rico and the Virgin Islands; the grant of special bonuses to promote the production of low sulfur fuel oil; and the relaxation or elimination of import restrictions on certain products (such as residual fuel oil imported into District I, asphalt and liquefied petroleum gases); and other changes. Some parts of the original

PRESIDENTIAL PROCLAMATIONS CREATING AND MODIFYING MANDATORY OIL IMPORT PROGRAM

Proclamation 3279 (24 FR 1781) dated March 10, 1959 - Provided for, among other things:

(1) In Districts I-IV -- a maximum level of crude oil, unfinished oils and finished products (except residual fuel oil to be used as fuel) equivalent to approximately 9% of total demand in those Districts, as estimated by the Bureau of Mines. Within this maximum level, imports of finished products (excluding residual fuel oil to be used as fuel) were limited to the level of imports in the year 1957, and imports of unfinished oils were restricted to 10% of the total permissible imports of crude oil and unfinished oils. Imports of residual fuel oil to be used as fuel were fixed at the level of residual imports during 1957.

(2) In District V -- a maximum level of crude oil, unfinished oils and finished products imports approximating the difference between domestic production and total demand in that District, as estimated by the Bureau of Mines. Within this maximum level, imports of finished products were limited to the level of imports in 1957, and imports of unfinished oils were limited to 10% of the total permissible imports of crude oil and unfinished oils.

(3) In Puerto Rico -- a maximum level of crude oil, unfinished oils and finished products imports at approximately the level of imports during all or part of 1958, as determined by the Secretary of the Interior, or such lower or higher levels subsequently determined to be required to meet changes in local demand in Puerto Rico or demand for exports to foreign areas.

(4) Issuance of implementing regulations by the Secretary of Interior, including regulations to allocate imports of crude oil and unfinished oils to companies with refinery capacity on the basis of refinery inputs and to allocate imports of finished products on the basis of imports in certain base periods.

(5) Establishment of an Oil Import Appeals Board, to be composed of one representative each with the rank of Deputy Assistant Secretary or higher from the Departments of Interior, Defense and Commerce.

Proclamation 3290 (24 FR 3527) dated April 30, 1959 - Exempted oil imported overland from country where it was produced.

Proclamation 3328 (24 FR 10133) dated December 10, 1959 - Required that exempted imports be taken into account in setting maximum level of imports into District V.

Proclamation 3386 (25 FR 13945) dated December 24, 1960 - Required that the level of imports of crude into Districts I-IV be adjusted to take into account the amount that the estimate of the Bureau of Mines exceeded or understated actual total demand. (No longer in effect.)

Proclamation 3389 (26 FR 507811) dated January 17, 1961 - Permitted the entry of "newcomers" into the residual fuel oil program, with allocations to be based on their deepwater terminal inputs.

Proclamation 3509 (27 FR 11985) dated November 30, 1962 - Provided that the level of imports of crude into Districts I-IV be 12.2% of liquid hydrocarbon production during a previous corresponding period in Districts I-IV less estimated exempt overland imports into those districts; formalized the use of a graduated scale in allocating all imports; and provided for a gradual reduction in allocations made on the basis of importing history.

Proclamation 3531 (28 FR 4077) dated April 19, 1963 - Removed requirement that members of the Oil Import Appeals Board be of Deputy Assistant Secretary rank or higher.

Proclamation 3541 (28 FR 5931) dated June 10, 1963 - Provided that the level of imports of crude oil into Districts I-IV be 12.2% of estimated crude oil and natural gas liquids production in Districts I-IV during the allocation period less estimated exempt overland imports into those districts.

Proclamation 3693 (32 FR 10547) dated December 10, 1965 - Required licenses for importation of crude into a Foreign Trade Zone; set up authority for grant of allocations to petrochemical plants; and provided for development of petrochemical industry in Puerto Rico.

Proclamation 3779 (32 FR 5919) dated April 10, 1967 - Provided for flexible authority to the Secretary of Interior with respect to asphalt imports.

Proclamation 3794 (32 FR 10547) dated July 17, 1967 - Provided for the Secretary of Interior to amend regulations so as to encourage the manufacture of low sulfur residual fuel oil; also amended definition of residual fuel oil to permit importation of crude oil to be burned directly as fuel.

PRESIDENTIAL PROCLAMATIONS CREATING AND MODIFYING MANDATORY OIL IMPORT PROGRAM

Proclamation 3820 (32 FR 15701) dated November 9, 1967 - Provided for granting special shipping rights of finished products from Virgin Islands to U.S. mainland.

Proclamation 3823 (33 FR 1171) dated January 29, 1968 - Provided for making of allocations based upon exports.

Proclamation 3969 (35 FR 4321) dated March 10, 1970 - Eliminated overland exemption of Canadian crude for Districts I-IV and replaced same with a volume limitation.

Proclamation 3990 (35 FR 10091) dated June 17, 1970 - Provided for making allocations of No. 2 fuel oil to independent deepwater terminals in District I.

Proclamation 4018 (35 FR 16357) dated October 16, 1970 - Provided that imports of ethane, propane and butane from Western Hemispheric sources are exempt from control, and that crude oil may be imported into District I to be topped for use as burner fuel. It also removed viscosity limits from crude to be burned directly as fuel.

Proclamation 4025 (35 FR 19391) dated December 22, 1970 - Provided for an increase of 100,000 bbls/d of imports for Districts I-IV during 1971. Authorized Mexican imports to enter by water in such amounts as Secretary of Interior prescribes.

Proclamation 4092 (36 FR 21397) dated November 5, 1971 - Provided for extension indefinitely of importation of No. 2 oil into District I, and authorized suspension of the requirement that No. 2 oil be manufactured from crude produced in the Western Hemisphere.

Proclamation 4099 (36 FR 24203) dated December 20, 1971 - Increased overall level of crude imports into Districts I-IV by 100,000 bbls/d during 1972 over 1971.

Proclamation 4133 (37 FR 3943) dated May 11, 1972 - Set up program for granting special allocation for petrochemical heavy liquids plant.

Proclamation 4156 (37 FR 19115) dated September 18, 1972 - Increased level of No. 2 oil imports by 5,000 bbls/d, and also permitted refiners to borrow 10% against their 1973 allocations.

Proclamation 4175 (37 FR 28043) dated December 16, 1972 - Permitted flexibility to allow Secretary of Interior to increase fuels shipments from Puerto Rico and Virgin Islands to U.S. mainland.

Proclamation 4178 (38 FR 1719) dated January 18, 1973 - Suspended restrictions on imports of No. 2 fuel oil into Districts I-IV for the first four months of 1973, and provided for an increase of 915,000 bbls/d in authorized levels of crude oil, unfinished oils and finished products (excluding residual fuel oil) into Districts I-IV. Eliminated the requirement for licenses for importation of crude oil into a Foreign Trade Zone.

program have been eliminated, such as historical allocations for crude oil and products. In general, however, the principal overall procedures and regulations for determining allocations of imported oil have been retained.

In the past two years or more, several revisions have been made in the MOIP raising authorized import levels in recognition of potential shortages of crude oil and petroleum products. The latest Presidential Proclamation dated January 18, 1973 is especially significant in this regard. First, based on a finding by the OEP Director that increases in domestic production in 1973 will not be sufficient to supply demand for petroleum and petroleum products in that year, the President upped the level of allowable imports of crude, unfinished oils and finished products (excluding residual fuel oil) into Districts I-IV by over 50% -- from 1,785,000 bbls/d in 1972 (after all adjustments) to 2,700,000 bbls/d in 1973. Second, based on a finding of a threat of temporary shortage of No. 2 fuel oil, the President removed all restrictions on import of that commodity into Districts I-IV for the first four months of 1973.

The MOIP was subjected to a searching review a few years ago by a Cabinet Task Force on Oil Import Control, appointed by the President in March 1969. In February 1970, the Task Force issued a majority report recommending that the present import quota system be replaced over a transition period of three to five years with a tariff system giving preferences to Western Hemisphere sources and incorporating a "security adjustment" to protect against undue Eastern Hemisphere imports. This recommendation was not adopted by the President.

At this time, the MOIP is now again under intensive review within the Administration. Major changes, or proposals for change, could be announced within the next one or two months.

C. Framework of Present Program

The Mandatory Oil Import Program is generally concerned with three principal functions: (1) regulating the degree of import restriction through a variety of separate quota levels, (2) allocating permitted imports among domestic claimants, and (3) managing program administration.

Quota Levels. Essentially, the MOIP entails two quota levels -- one pertaining to crude oil, unfinished oils and finished products, and the other pertaining to residual fuel oil. Each of these varies geographically, as described below.

Exemptions. Various products are exempt, or partially so, from quota restrictions. For example, overland imports of crude, unfinished oils and finished products from both Canada and Mexico[1/] were exempt from formal restrictions for most years of the MOIP's existence, although the levels of imports were limited by intergovernmental agreements. (However, beginning in 1962, imports from Canada and Mexico were taken into account in calculating the overall percentage level of imports into Districts I-IV.)

1/ Imports from Mexico were exempt by virtue of an arrangement whereby Mexican oil was shipped by tanker to Brownsville, Texas where it was loaded onto trucks, hauled across the border into Mexico and immediately back to Brownsville, reloaded on tankers and shipped to the East Coast. The second entry qualified for the overland exemption, whereas the first was regarded as a shipment in bond and hence outside the MOIP. Imports from Mexico were limited by agreement to 30,000 bbls/d. The "Brownsville Loop" arrangement was converted in January 1971 into an essentially country-of-origin quota for Mexico.

In 1970, this exemption was removed for Canadian imports of crude and unfinished oils into Districts I-IV, and mandatory controls were imposed due to increases in Canadian imports far in excess of levels previously agreed to by the U.S. and Canadian governments. The exemption, however, continued in District V. Also, imports of finished products from Canada into Districts I-IV are exempt, provided such products are derived from Canadian produced crude.

In addition to the overland exemptions, the following petroleum items are exempt from import controls:

Natural gas liquids from Canadian sources
Ethane, butane and propane from Western Hemisphere sources
Asphalt imported into Districts I-IV
Benzene, toluene and xylenes
Wax and petrolatum
Methane

Allocations. Allocations of quota levels are made differently for crude and unfinished oils, finished products, and residual fuel oil to be used as fuel.

In the case of crude and unfinished oils, import licenses -- called "tickets" -- are issued in all areas (except Puerto Rico) to companies which have refinery capacity and had "inputs" to their refineries during a specified period. In Districts I-IV and in District V, the allocations to each company are based on its refinery inputs and calculated according to a "sliding scale" whereby decreasing percentages are assigned to higher increments of refinery runs of a company. This obviously favors the small refiners. All licensees are required to run (a) the imported crude oil in their own refineries, or, alternatively, (b) to import the

oil and then exchange it for domestic oil which they must process in their own plants.

The ability to exchange licenses or "tickets" results in virtually all imported crude oil being processed in coastal refineries, thereby avoiding the need for transportation of the imported crude to inland refineries. Thus, the exchange of "tickets" creates a certain value for inland refiners -- this value being roughly measured by the difference between foreign crude and domestic crude of approximately the same quality delivered to the same point. These values, however, are subject to negotiation where the exchanges involve different qualities of crude and depending on the demand for foreign crude. Over the years, "ticket" values have ranged between zero and $1.50/bbl. Late in 1972, "tickets" were valued at about 50¢/bbl.

Beginning in 1966, allocations of crude oil and unfinished oils also have been made to eligible petrochemical companies on the basis of their petrochemical plant inputs. For 1972, the allocation was based on 11.2% of their plant inputs in Districts I-IV and 11.9% in District V. Petrochemical companies are permitted additional allocations based on amounts of petrochemical products exported to foreign lands.

In the case of finished products (other than residual fuel oil), allocations were originally granted in all areas to companies which were historical importers in a certain base period. Historical product allocations were eliminated in 1970 (except for the U.S. military) at which time a program was adopted for No. 2 oil imports into District I.

Residual imports into District I are effectively decontrolled (although still subject to licensing and certain other administrative requirements).

Districts I-IV. In 1962, the level of imports of crude oil, unfinished oils and finished products (including overland imports from Canada and Mexico) was set at 12.2% of estimated domestic production of crude oil and natural gas liquids. This percentage figure is still retained in the applicable regulations but, as indicated by the table on the following page, has been exceeded in actuality by increasing margins in the past three years. In 1972, for example, total controlled imports into Districts I-IV (excluding residual fuel oil) were ultimately fixed at 1,785,000 bbls/d after all adjustments during the year, representing over 17% of estimated domestic production. The Canadian portion of this total was 582,000 bbls/d.

Imports of unfinished oils may not exceed 15% of the total permissible imports of crude oil and unfinished oils.

With respect to finished products, controlled imports into Districts I-IV in 1972 totalled 149,000 bbls/d -- with a large part resulting from special allocations or shipping rights granted to refiners in Puerto Rico (64,000 bbls/d)[1/] and the Virgin Islands (15,000 bbls/d). In addition, the total includes a 50,000 bbl/d allocation granted to independent deepwater terminal operators[2/] for the importation of No. 2

1/ A further 43,000 bbls/d of products is shipped by historical refiners in Puerto Rico; this amount is not controlled but is fixed by historical rights.

2/ An independent deepwater terminal operator is defined as one that has no crude oil allocation and has at least 100,000 barrels of storage capacity for No. 2 oil and is on deepwater, i.e., 25 feet deep. This will handle a 16,000 ton dead weight tanker. Deep water ports now under consideration are 100 feet deep and can handle 500,000 ton dead weight tankers.

TABLE IV-2

SUMMARY OF OIL IMPORT ALLOCATIONS UNDER MANDATORY OIL IMPORT PROGRAM IN DISTRICTS I-IV (1970-1972)

(MBD)

	1970	1971	1972[a/]	1972[b/]
Estimated Domestic Production (Crude Oil and NGL)	9,879	10,246	10,420	10,420
12.2% Formula	1,205	1,250	1,271	1,271
Additional Allocations Above 12.2%	104	200	279	514
Total "Controlled" Imports	1,309	1,450	1,550	1,785
a. Crude and Unfinished Oils				
Refiners	561	639	657	884
Canada	384	475	540	582
Mexico	30	31	36	24
Petrochemical Companies	90	94	94	94
Appeals Board	35	45	35	40
Other	37	24	43	12
Total	1,137	1,308	1,405	1,636
b. Finished Products				
Puerto Rico	45	67	64	64
Canada	30	--	--	--
Virgin Islands	15	15	15	15
No. 2 Oil (District I)	20	40	45	50
Historical	48	--	--	--
Defense Department	--	20	20	20
Other	14	--	--	--
Total	172	142	144	149

a/ As announced 1/1/72.
b/ As revised 12/15/72.

Source: Interior Department, Oil Import Administration.

fuel oil into District I. This allocation was first granted in August 1970 (at a level of 40,000 bbls/d), on condition that the No. 2 fuel oil be derived from crude produced in the Western Hemisphere. In December 1972 the President eliminated for a four-month period the requirement of Western Hemisphere origin. This means the oil may now be imported from anywhere in the world.

District V. The level of imports of offshore crude oil and unfinished oils is set at an amount which, together with domestic supply and production and exempt Canadian overland imports, will approximate total demand in that district. The licensed level of imports of crude and unfinished oils into District V in 1972 was 289,000 bbls/d. In addition, 150,000 bbls/d of crude oil were set aside for granting "bonus" allocations of crude oil to persons in District V who produced low sulfur residual fuel oil.

Imports of unfinished oils may not exceed 25% of the total permissible imports of crude and unfinished oils.

Puerto Rico.[1/] Two classes of import allocations are granted in Puerto Rico. The first is to historical refiners, i.e., refiners in operation in 1964, who are allowed imports to meet all local Puerto Rican demand, demand for export sales to foreign areas, and the volume of shipment made to the U.S. mainland in 1965. The second class of allocations is to certain companies (Phillips Petroleum, Sun Oil, Union Carbide, and Commonwealth Oil & Refining) which, under special arrangements negotiated with the Secretary

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1/ Since Puerto Rico is inside the customs territory of the U.S., oil can not be imported into Puerto Rico without an import license.

of the Interior in the mid-1960's, agreed to build petrochemical plants or refineries which would promote economic development in Puerto Rico, subject to access to Continental U.S. markets for a portion of plant output. As a result, the four companies were granted licenses to import crude oil from Western Hemisphere sources and the right to ship specified volumes of various products to the U.S. mainland.

With respect to shipping rights to the U.S. mainland, historical refiners are limited to those products (excluding residual fuel oil) which were shipped to the U.S. mainland in 1965, i.e., approximately 43,000 bbls/d. The second class of plants mentioned above received ten-year permits from the Secretary of the Interior to move 64,000 bbls/d to the U.S. mainland of finished or unfinished oils (excluding residual fuel oil, which requires no permit for shipment to the Continental U.S.). On December 18, 1972, the President authorized the Secretary of the Interior to grant additional shipping rights for movement of No. 2 fuel oil to Districts I-IV from Puerto Rico.

Virgin Islands. No license or allocation is required for importation of crude oil into the Virgin Islands, since it is outside U.S. customs territory, but a license is required if the oil is moved to the U.S. mainland.[1/] In 1967, Interior approved a special arrangement granting Hess Oil Co. (now Amerada-Hess Corp.) permission to ship 15,000 bbls/d of finished products (other than residual fuel oil) from its Virgin Islands refinery to Districts I-IV. The allocation -- justified by the Administration, as in

1/ Unlike the situation in Puerto Rico, however, the Jones Act requirement that U.S. bottoms be used for shipments to the mainland does not apply to the Virgin Islands.

the case of the special arrangements negotiated in Puerto Rico, primarily on economic development grounds -- is deducted from the total finished products portion of the overall crude products quota for Districts I-IV. Recently, on December 18, 1972, the President authorized the Secretary of Interior to permit the shipment of additional quantities of finished products to the U.S. mainland above the 15,000 b/d limitation in order to help alleviate current fuel shortages on the U.S. mainland.

Any amount of residual fuel oil may be imported from the Virgin Islands into District I to persons having a residual fuel oil license.

Administration. As noted previously, the MOIP is presently administered by the Office of Oil and Gas under regulations issued by the Department of Interior. Changes in these regulations are normally preceded by notice and hearing procedures associated with rulemaking proceedings, but a number of changes have been made without such procedures. OOG is aided by other offices within the Department of Interior, and from time to time by other executive departments, in carrying out the MOIP. The enforcement of imports entering the U.S. is through customs control. A great reliance is placed on the industry itself for the accuracy of claimed refinery inputs on which allocations are based and for observance of the limits on product shipments from Puerto Rico -- which are not subject to customs control because Puerto Rico is within U.S. customs territory. However, the Office of Oil and Gas now has field compliance offices to help police the intent of the regulations.

The Oil Import Appeals Board. The OIAB -- presently consisting of representatives from the Interior, Commerce and Justice Departments --

was created by the original Proclamation 3279 and given power to modify or grant allocations (except original allocations of crude and unfinished oils) and to review the revocation or suspension of any import license. In addition, the OIAB has power to make allocations from so-called "set-aside" amounts granted to it from the total crude and products quota on grounds of hardship. OIAB allocations have become increasingly important since 1969.

D. Treatment of Residual Fuel Oil Under MOIP

The subject of residual fuel oil is deserving of special mention because of its quite different treatment from that of other products under MOIP, the present dependence of the East Coast on imports of this fuel, and the consequences of importing a finished product rather than crude oil.

Residual fuel[1/] is a black viscous material primarily composed of the residuum (or bottoms) of the refining process. It is the product that remains after lighter products such as gasoline, jet fuel, gas oil and distillate fuels are refined from crude oil. This residuum is suitable, within limits, for the firing of boilers in industry, electric utility plants, ship propulsion, and heating large buildings, etc. Residual fuel oil is not used for heating individual homes because small furnaces require a free flowing and clean distillate type of fuel oil.

1/ Residual fuel, as used in this study, is as defined in the Presidential Proclamation 3279, as amended. Specifically, residual fuel oil consists of (1) topped crude oil or viscous residuum which has a viscosity of not less than 45 seconds Saybolt universal at 100° F. and (2) crude oil which is to be used as fuel without further processing other than by blending by mechanical means.

1. Sources of Residual Fuel Supply

Imports of residual fuel oil have increased over threefold in the past 14 years -- from about 500,000 b/d in 1958 to about 1,750,000 b/d in 1972 (nearly all of which is consumed on the East Coast). This increase is due to three principal factors. First, domestic production of residual fuel oil has declined as improvements in refining technology have permitted refiners to lower the proportion of residual output in favor of gasoline and other more profitable lighter products. Second, the MOIP was modified in 1966 to virtually decontrol imports of residual fuel oil (for use as fuel) into District I. The result has been to make the East Coast almost totally reliant on foreign imports for its residual fuel supply. Third, demand has risen because of air pollution regulations restricting sulfur content. The increasing dependence of the U.S. on imported residual fuel oil is as follows (from the U.S. Bureau of Mines, in millions of barrels daily):

	Domestic Production	Imports	Total Demand
1958	1.00	0.50	1.46
1959	0.95	0.61	1.54
1960	0.91	0.64	1.53
1961	0.86	0.66	1.50
1962	0.81	0.72	1.50
1963	0.76	0.75	1.48
1964	0.73	0.81	1.52
1965	0.74	0.94	1.61
1966	0.72	1.03	1.72
1967	0.76	1.09	1.79
1968	0.76	1.12	1.83
1969	0.73	1.27	1.98
1970	0.71	1.53	2.20
1971	0.75	1.58	2.30
1972	0.80	1.75	2.54

As shown by Table IV-3 on the following page, virtually all of the imports are consumed on the East Coast (District I) -- over 99% in 1972. East Coast demand for residual fuel oil was approximately 1,700,000 b/d in 1972; of that amount, some 1,600,000 b/d were imported.

The table also depicts the impact of air pollution control standards on the sulfur content of the imported volumes. In District I, for example, imports of residual fuel oil containing 0.5% sulfur or less rose nearly 85% in 1972 compared with 1971, while imports containing over 1.0% sulfur fell nearly 15%.

Reflecting in part the emphasis on low sulfur fuels, the points of origin of residual fuel imports have shifted in recent years. Another cause is the current pricing practice in Venezuela. As the table below indicates, imports of 0 to 1.0% sulfur fuel oil from Italy, the Bahamas, the Virgin Islands and Canada have increased from zero percent in 1965 to 29.3% in 1971, whereas the contribution of Venezuela and the Netherlands Antilles (crude is from Venezuela) dropped from 85.7% in 1965 to 55.0% in 1971.

Country	1965	1972
Venezuelan	53.2%	31.5%
Netherlands Antilles	32.5	17.6
Italy	0	4.2
Trinidad	9.2	9.2
Bahamas	0	9.0
Mexico	1.2	0.3
Virgin Islands	0	15.4
Colombia	1.0	0.5
Canada	0	4.8
All Others	2.9	7.5
	100.0%	100.0%

TABLE IV-3

U.S. RESIDUAL FUEL OIL SUPPLY BY SULFUR RANGE AND PAD DISTRICT
1971 and 1972
(Thousands of Barrels per Day)

	Percent Sulfur Content						Total	
	0 - .50		0.51 - 1.00		Over 1.00			
	1971	1972	1971	1972	1971	1972	1971	1972
Supply from U.S. Refineries								
PAD I	19.6	17.7	24.2	29.4	57.9	55.6	101.7	102.7
PAD II-IV	23.7	22.2	129.0	141.8	202.5	218.6	335.2	382.6
PAD V	95.1	137.3	5.2	22.3	195.3	154.3	295.6	313.9
Total	138.4	177.2	158.4	193.5	455.8	428.5	752.5	799.2
Supply from Imports								
PAD I	299.5	553.2	447.8	439.1	707.6	606.0	1,455.0	1,598.3
PAD II-IV	--	1.8	8.6	8.3	2.2	5.5	10.8	15.6
PAD V	--	--	--	--	2.1	2.6	2.1	2.6
Total	299.5	555.0	456.4	447.4	711.9	614.1	1,467.9	1,616.5

Source: U.S. Bureau of Mines.

Moreover, U.S. restrictions on the sulfur content of residual fuel oil are causing refiners in the Caribbean -- which produce the bulk of the residual fuel oil imported into the United States -- to alter their operations in order to meet the sulfur requirements. Specifically, these refiners are now required to be more selective in their choice of crude oils used to manufacture low sulfur residual (i.e., with respect to sulfur content, pour points and metals contained in the crude) and, in many cases, they must also install elaborate and expensive systems for desulfurizing gas oil (distillate) for blending with the residual. While the amount of desulfurized gas oil[1/] to be blended depends on the sulfur content of the residual and the required sulfur content of the end product, as much as 50% gas oil may be required in the blend. The overall result is to reduce the quantities of No. 2 oil which could be made available by Caribbean refiners for importation into the U.S.

Other than the U.S. itself (where low sulfur crudes are more abundant than in any other area of the world but are generally not used for producing residual fuel oil because of economic reasons),[2/] there are only three large volume sources of crude oil with a naturally low sulfur content. These sources are North Africa, Nigeria and Indonesia. However, most naturally low sulfur content crudes are also paraffinics and, as such,

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1/ Gas oil generally refers to a refinery intermediate -- a semi-refined product that is heavier than gasoline.

2/ In the past, it was more economic to install refining facilities to convert lower value residual components to higher value lighter products, particularly gasoline, and this is why the configuration of U.S. refining capacity evolved as it did.

produce residual fuel with a pour point of over 100° F. (The pour point is a test for measure of the temperature at which an oil ceases to flow.) This means that residual fuel oil produced from such crudes requires special heating equipment in storage tanks and along the pipeline system. While large users such as public utilities generally would have little problem with the high pour fuel because most have the special heating equipment required, smaller users of this fuel -- such as office buildings, hospitals and apartments -- would encounter serious difficulties.

Venezuela, currently the largest supplier of residual fuel oil to the U.S., produces crude oil with a sulfur content of some 2 to 3.5% -- far above the requirements for East Coast residual fuel needs. (The amount of sulfur in residual fuel oil is always higher than in the original crude because sulfur compounds tend to be left behind in the bottom in the distillation process of refining.) Refineries can at least partially desulfurize Venezuelan residual fuel oil, but the cost is high because of its high vanadium content. Whereas most low sulfur residual fuel oil is made by directly desulfurizing a residual intermediate, high vanadium content oil cannot be directly desulfurized because the metal poisons the catalyst which is used. Consequently, Venezuelan oils are processed by cutting very deeply into the residual intermediate in a distillation unit, which concentrates the metals in the remaining bottoms. Then the distillate from this unit, which is essentially metals free, can be desulfurized. The desulfurized distillate is then mixed with the bottoms to make the finished low sulfur fuel oil. All low sulfur Venezuelan residual is being produced by this method.

A possible substitute for residual fuel oil is crude oil which can be burned directly in boilers and furnaces. Several public utilities presently burn whole crude; however, special precautions must be taken in the storage of crude because of its high volatility and explosiveness factor. Whereas regular residual fuel oil can be stored in any type container because of its high flash point and non-volatility, crude oil in most all instances should be stored in floating roof tanks with safety equipment installed on the tanks to prevent static electricity from igniting free vapors that are present. It should also be pointed out that, in burning whole crude directly, one effect is to consume a clean portion of the crude (i.e., naphtha) in an inferior use.

2. MOIP Regulations Affecting Residual Fuel Oil

As originally established in 1959, the MOIP included residual oil imports, with allocations based primarily on the position of importers in the base year (1957, or the last half of 1958 in the case of Puerto Rico). The basic problem with this system was that every licensed importer was rigidly tied to the share of the total supply he held in the previous period. Given the rising dependence of all East Coast cargo buyers on imported supplies, this inflexibility caused serious problems both for the importers and their customers.

In 1966, following a finding by the Director of OEP that import controls on residual fuel oil were not necessary to national security,

residual fuel oil imports into District I to be used as fuel[1/] were effectively freed from controls. The necessity for licenses was retained, but the eligibility requirement for such licenses was expanded to include not only historical importers in 1957 but also all persons who were in the business of selling residual fuel oil to be used as fuel and who either maintained a deepwater terminal in District I or had a bona fide throughput agreement with a District I deepwater terminal. The allocation formula established by Interior permitted any eligible importer sufficient imports of residual fuel oil to meet all bona fide sales contracts.

Similar measures have not been taken to decontrol residual fuel oil imports into Districts II-IV and District V.[2/] However, in recent years, the President has issued various Proclamations, and the Secretary of Interior has proposed or promulgated various regulations, designed to encourage imports of low sulfur residual fuel oil, or crude oil as bonuses for the production of low sulfur residual fuel oil, in an effort to alleviate air pollution problems.

The first step was a Proclamation in July 1967 authorizing "bonus" allocations of crude oil to persons "who manufacture in the United States residual fuel oil to be used as fuel, the maximum sulfur

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1/ The qualification, "to be used as fuel," was intended to assure that residual fuel oil imports were not used to circumvent crude oil restrictions by converting residual fuel feedstocks by cracking into gasoline or other products.

2/ However, residual fuel oil produced from Canadian crude can be imported into Districts II-V (as well as District I) without allocation or license. The same is also true of shipments of residual fuel oil from Puerto Rico.

content of which is acceptable to the Secretary [of Interior], in consultation with the Secretary of Health, Education and Welfare."[1/] On October 4, 1967, the Secretary of Interior implemented this Proclamation by providing for bonus allocations of crude oil on a barrel-for-barrel basis to refiners in District V who manufactured low sulfur residual fuel oil (under 0.5% sulfur content), whether refined from domestic or imported crude oil, and delivered it to "customers required to burn such fuel in order to comply with local government regulations." According to the Secretary of Interior, these bonus quotas were intended to deal with mounting air pollution problems in Los Angeles County. Allocations under this bonus program have been growing steadily; from an initial rate of 12,000 bbls/d in 1968, they amounted to 55,000 bbls/d in 1970, are estimated to total 150,000 bbls/d in 1972, and will probably reach 200,000 bbls/d in 1973.

Next, on December 11, 1968, the Secretary of the Interior extended a program to promote the production of low sulfur residual fuel oil in Districts I-IV by authorizing additional unfinished oil allocations to refiners manufacturing low sulfur residual oil. However, unlike District V, the allocations were restricted to unfinished oils imported from Western Hemisphere sources and to persons who installed a desulfurization facility. This amendment to the regulations was indefinitely suspended five months

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1/ The same Proclamation changed the definition of residual fuel oil to include both No. 4 oil (which is lighter than No. 5 and No. 6 fuel oil) and crude oil burned directly as fuel. In District I, the effect of these changes was to enable the importation of lower sulfur fuels (for direct burning) without restriction.

later. Before suspension, however, three companies were granted 10-year allocations in return for agreement to construct desulfurization facilities to produce low sulfur residual on the East Coast. Those three allocations, for a total of 241,000 bbls/d, were not suspended. However, by 1972, construction had not started on any of the facilities mainly because of inability to obtain suitable plant sites and other technical points.

In Districts II-IV, environmental pressures led several electric utilities and oil companies to apply to the Oil Imports Appeals Board in the past three years for special allocations of low sulfur residual fuel oil on "hardship" grounds. In 1970, the OIAB granted such allocations to Commonwealth Edison Co. and Detroit Edison Co. -- representing the first major import allocations to utility companies -- and announced the availability of about 26,000 bbls/d for allocation in Districts II-IV during the succeeding year. In 1972, the Oil Import Appeals Board was granted a "kitty" of some 40,000 bbls/d of residual fuel oil for allocation in Districts II-IV in cases of demonstrated hardship.

A still further measure to provide some flexibility in residual fuel oil markets was a Proclamation on October 20, 1970 giving the Secretary of Interior authority to permit the topping of crude oil in District I for the purpose of producing burner fuel, subject to such conditions as the Secretary might specify by regulations without adversely affecting the national security. Subsequently, the Secretary published a proposed rule to this effect, with the proviso that all products of the topping process were to be utilized in the importer's own facilities. It was further proposed that importers in District I could obtain the imported oil from any

source, while importers in Districts II-IV would be restricted to Canadian sources only. Adoption of this proposed regulation would have supplemented existing provisions authorizing the direct burning of crude oil by encouraging, in the interest of safety, the topping of imported crude prior to burning. However, most of the comments in response opposed the proposal because of, among other reasons, the lack of a procedure for utilizing the naphtha topping for production of synthetic gas. The proposal was not adopted.

E. Alternatives to MOIP

The purpose of MOIP is primarily to support the domestic oil industry by limiting imports of foreign crude oil and products on a volumetric basis. This is not the only way to support a domestic industry. In general terms, there are at least four general approaches to supporting a domestic industry versus its foreign competition:

1. Volumetric limits on imports, such as MOIP.
2. Tariffs or fees on imports, such as recommended in 1970 by the U.S. Cabinet Task Force on Oil Import Control.
3. Methods which combine features of both of the above, such as import auctions proposed by at least one major oil company in the last few years.
4. Direct subsidy of the domestic industry.

The major advantages (as seen by proponents) and disadvantages (as seen by opponents) of each are as follows:

1. Volumetric Limitations

Advantages

1. Volumetric limitations can totally insulate domestic prices from downward pressure of lower foreign prices (on a delivered to the U.S. basis).
2. If administered properly, the minimum portion of the domestic market available to the domestic industry can be delineated and predicted. MOIP has not, obviously, had this advantage.
3. Once properly set up, minimal "fine tuning" adjustment or revision is required. Again, MOIP did not have this advantage because of its specific structure.
4. Planning by industry and government is probably easiest with this approach, at least in theory, because each company should know well in advance exactly what import volume he will get.
5. Cost of imports to the importer (not necessarily the consumer) is minimized, i.e., nothing is added in duty or fee.

Disadvantages

1. Does not generate revenue in basic form.
2. It is complex in structure, because import volumes have to be allocated in some fashion to all of the recipients and a balance between crude and product imports must be determined.
3. There is usually no price competition between domestic and foreign crude and products.
4. When domestic supply is inadequate, a revision in quota levels is required.

5. The program generates pressure for added low cost imports, which is a disincentive for developing domestic oil operations.

2. Tariff or Fee Approach

Advantages

1. Allows maximum interplay of market forces, i.e., who buys what from whom at what price is only minimally restricted. Also, there is some price competition between domestic and foreign crude and products.
2. Feueral revenues are generated, which if domestic versus foreign price differential is large can be very large.
3. In basic form, the structure can be very simple conceptually.
4. The most generally used method of restricting imports is through tariffs.

Disadvantages

1. Import volumes are quite unpredictable, therefore, portions of the domestic market available to the domestic producer are unpredictable.
2. Price of domestic crude can be quite volatile, depending on vagaries of tanker rates and foreign oil prices, reducing the incentive to develop new domestic reserves. Even careful "fine tuning" may not avoid this problem.
3. Cost of imports to the importer are increased. The consumer may or may not know the difference in cost.

3. Combination Approaches

The major combination approach proposed in recent years has been the import auction, and advantages and disadvantages of this are

discussed here. In the import auction system, the desired volumes of imports are periodically auctioned by the government to the highest bidders. It is largely a volumetric approach -- total import volume is limited, and there is also what could be called a variable tariff or fee according to how high the bidding goes.

Advantages and Disadvantages

This approach has all the advantages of the volumetric, except that each company does not know what imports he will get until after each auction. Also, revenues are generated which means cost of imports are not minimized.

It also has the unique disadvantage of favoring the cheapest foreign product(s) over all others.

4. Direct Subsidy

This is much like the tariff or fee approach, except instead of tacking on a tariff or fee to imports, a roughly equivalent per unit subsidy is tacked on to domestic products. Obviously, this approach can be a heavy drain on federal funds, but these are returned to the public in lower prices. Politically, this is probably the worst approach because funds required can be so large.

Which of the above is the best approach has been the topic of much debate and controversy. Whether any type of import restrictions at all are desirable is perhaps the most controversial issue, and that question is beyond the scope of this study.

As to the more specific concern of this study -- availability of clean fuel -- either the volumetric or the tariff/fee approach can be

structured so as not to restrict clean fuel or raw material imports short term during periods when domestic refining capacity is not adequate or cannot be completed in time. Also, either can be structured long term so as to encourage domestic refining of clean fuels, and to encourage more domestic raw material for clean fuels. More specifically, a volumetric approach can be set up to increase allowed volumes of crude or product short term as needed, and have firm volume limits longer term to encourage domestic production and refining. The firm limits can be phased in over a period of years to provide as smooth a transition as possible. Similarly, a tariff/fee approach can have minimal or no fees on crude oil and on products needed short term, and rise over a period of time to predetermined levels which will encourage domestic production and refining over foreign.

Regardless of the approach, it should be reviewed frequently, i.e., more than once a year, to see if its low sulfur fuel oil and other objectives are being met.

CHAPTER V - REGULATORY MEANS OF INCREASING LOW SULFUR FUEL SUPPLY

A. Supply, Demand and Price Trends for Oil in the United States

Before proceeding with discussion of regulatory means of increasing low sulfur fuel supply, it is useful to review the overall oil supply, demand and price situation in the U.S.

Energy demand in the U.S. had doubled in the last 20 years and is expected to double again in the next 15 years. It has been oil and gas, not coal or nuclear which has satisfied the growing energy requirements. Petroleum and natural gas now supply some 75% of the nation's current energy requirements.

But the domestic supply of oil and gas has been declining in recent years, relative to demand. Most of the easily found domestic reserves have already been discovered and the remainder is less accessible and more expensive to produce, relative to the prevailing price of crude oil. Moreover, the reduction of the oil depletion allowance by the Tax Reform Act of 1969 effectively increased taxes and further reduced the economic incentive for oil exploration.

Historically, the domestic refining industry has not been able to produce residual fuel oil on a competitive basis with foreign residual fuel oil because of the high price of domestic crude oil, and, in District I, the lack of import restrictions as established under the MOIP. In the past, foreign imported residual fuel oil has been priced below that of domestic crude. The pricing of residual on the East Coast is comparable with the lowest cost markets abroad because the virtually unlimited importation

of this fuel causes it to reflect world market conditions. Thus, the East Coast has become increasingly reliant upon imported residual fuel oil and their current import level now represents about 90% of their total demand for residual fuel oil. Not only is this area dependent upon a foreign source of supply but they are also without the necessary refining facilities to meet their fuel oil needs in the event foreign sources of supply are disrupted. In fact, refining capacity on the East Coast has declined in the past 10 years, although some 1,000,000 b/d of new refining capacity has been constructed in the Caribbean and Canada to supply residual to the East Coast. Therefore, the refining capacity for this product has been exported.

Although environmental restrictions have increased the demand for low sulfur fuels, the domestic oil industry has not constructed desulfurization facilities for heavy fractions which would enable them to produce low sulfur residual fuel oil from high sulfur crudes. In addition, some low sulfur fuel is being produced by blending high sulfur residual with a lighter No. 2 (househeating) fuel oil. This means additional supplies of No. 2 oil are required for that purpose.

A definitive study of the outlook for U.S. oil supply-demand trends was recently prepared by the National Petroleum Council at the request of the Federal Government.[1/]

The NPC made four different case studies of the supply-demand projected to 1985. The case studies ranged from an all-out development of

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1/ National Petroleum Council, "U.S. Energy Outlook," December 1972.

domestic sources of fuel, to a condition which assumes that recent adverse trends in the development of energy sources will continue, as follows:

Case I - Estimates outcome from maximum effort to develop domestic fuel sources. Assumes oil and gas drilling increases at rate of 5.5% per year and a high projection of discovery per foot drilled, and that synthetic fuels be developed and produced at the maximum rate physically possible without any restrictions due to economical problems. The nuclear power projections are based on the assumption that all new base load generating plants ordered between now and 1985 will be nuclear. Production of coal for domestic consumption is increased at a rate of 5% per year.

Case IV - The lowest supply case, assumes that recent trends in the U.S. oil and gas drilling activity and the success from such efforts will continue; the siting and licensing problems with nuclear plants will continue; the incentives to develop new coal mines will not improve and environmental constraints will continue to retard development of resources. This case results in a continued deterioration of the nation's energy supply posture and is generally less optimistic than the appraisal made one year ago.

Case II - Assumes a less optimistic future than Case I, oil and gas drilling activities at 3.5% per year increase, but with the same finding rate per foot drilled. For nuclear assumes problem in manufacturing and installation lead times will be solved quickly. Coal production increase at 3.5% per year. Synthetic fuels are developed at a moderate rate.

Case III - Assumes that there will be improvement over Case IV. Oil and gas drilling grows at average annual rate of 3.5% per year but the

trend of oil and gas findings per foot drilled are lowered to those of Case IV. The development of nuclear power proceeds at about rate in AEC's most favorable forecast. The results of these four cases are summarized on the following table.

U.S. OIL SUPPLY-DEMAND BALANCE AS PROJECTED BY NATIONAL PETROLEUM COUNCIL

(Million Barrels per Day)

Year	Annual Demand	Domestic Production	Syncrude Coal	Syncrude Oil	Net Imports	Percentage Imports
			Case I			
1970 Actual	14.7	11.3	0	0	3.4	23.1
1975	17.5	10.2	0	0	7.2	41.1
1980	19.6	13.6	0.1	0.2	5.8	29.6
1985	20.5	15.5	0.7	0.8	3.6	17.6
			Case II			
1970 Actual	14.7	11.3	0	0	3.4	23.1
1975	17.6	10.2	0	0	7.4	42.0
1980	20.5	12.9	0	0.1	7.5	36.6
1985	23.1	13.9	0.1	0.4	8.7	37.7
			Case III			
1970 Actual	14.7	11.3	0	0	3.4	23.1
1975	18.3	9.8	0	0	8.5	46.4
1980	22.3	11.6	0	0.1	10.6	47.5
1985	25.8	11.8	0.1	0.4	13.5	52.3
			Case IV			
1970 Actual	14.7	11.3	0	0	3.4	23.1
1975	19.3	9.6	0	0	9.7	50.3
1980	25.3	8.9	0	0	16.4	64.8
1985	29.7	10.4	0	0.1	19.2	64.8

As can be seen from these forecasts, Case I would be the most attractive and Case IV the least attractive alternative from the U.S. point of view. Perhaps Case II is the most reasonable objective as among the four alternatives. It will involve a substantial increase in both domestic oil production and in oil imports. Demand for oil differs in each case because of different projections for other types of energy such as nuclear power.

Based on the reserve additions, crude oil production is projected to increase from 1970 level of 9.1 million barrels per day to levels between 9.4 million barrels per day and 13.5 million barrels per day in 1985, depending upon assumptions made in the Case I to IV. Approximately 20% of this projected production is forecast to come from the North Slope. Equally important is that our U.S. offshore region is also projected to provide 20% of the total domestic by 1985. Secondary and tertiary recovery processes account for 40% of the 1985 crude oil production. In all cases there was a period in which domestic oil production declined from 1970 levels at a rate of 2 to 3% per year for at least five years before beginning to increase. This is a result of the lead time involved in finding and developing new production.

Domestic oil and gas resources are of sufficient quantity to support substantial increases in production according to the NPC. The oil resources remaining to be discovered total twice the 93 billion barrels of oil produced in the U.S. through 1970. However, this oil is going to be more costly to produce because it is located in the less accessible places, and will also involve secondary and tertiary recovery.

Alaska emerged as a significant source of supply to the markets in the Lower 48 States with the discovery in the Prudhoe Bay area of the

North Slope in 1968. Oil reserves in the Prudhoe Bay area are currently estimated at 10 billion barrels. Most authorities predict that more reserves will be discovered in Alaska as soon as the transportation problems are solved. Delays encountered in obtaining necessary approval for the proposed oil pipeline from the North Slope to Valdez in southern Alaska are well known and require no further comment here. The effect of this delay has been to slow down further exploration in the North Slope area.

In addition to the Valdez route, other routes are under consideration for the transportation of the North Slope oil. One alternate route would be a pipeline through the Mackenzie Delta corridor in the Northwest Territories of Canada via Alberta and thence to the U.S. market via an expansion of existing pipeline systems.

Presently, over 200,000 b/d of oil is being produced in the Cook Inlet area of Alaska. There are two refineries located in Alaska that use about 50,000 b/d of this oil, hence 150,000 b/d is being moved by tanker to the refineries on the West Coast of the U.S. Most of this oil goes to refineries in Southern California because it is of low sulfur and ash content. Most of this oil is used to take advantage of MOIP program on the West Coast in which one barrel of offshore import licensed oil is granted for each barrel of low sulfur (under 0.5%) residual fuel oil produced. The low sulfur Alaskan crude oil facilities comply with this particular feature of the MOIP program. However, if there is not more exploration and development in that area, this supply source is projected to soon decline with a deleterious effect on the total supply of low sulfur fuel available for Southern California.

In 1971, the U.S. imported approximately 850,000 b/d from Canada, with most of the volume originating in the Provinces of Alberta and Saskatchewan. In 1972, the imports from Canada will be well over 900,000 b/d. For 1973 it is expected that some 1,000,000 b/d will be imported. This oil is moved to the U.S. mainly through three pipeline systems, the largest being the Interprovincial Pipeline System which moves about 500,000 b/d of Canadian crude into the Northern Tier states as well as Illinois, Indiana, Ohio and New York. The Interprovincial line also moves crude to the Canadian refineries in Sarnia and Toronto. The Hudson Bay Pipeline moves about 100,000 b/d of oil into Montana, Colorado, Wyoming, Kansas, Missouri and southern Illinois. The other pipeline system is the Trans-Mountain Pipeline which moves over 200,000 b/d into the State of Washington.

Canada, at the present time, is estimated to have a few hundred thousand barrels per day of excess production capacity and has relatively limited proven reserves. The Interprovincial Pipeline System is the only line that had any spare capacity for moving additional volumes of oil in 1972.

Canadian exploration is primarily proceeding in three areas: the Mackenzie Delta in the Northwest Territories, the Arctic Islands, and Sable Island off Nova Scotia. Significant discoveries have been announced, but at this time without disclosure as to the reserve magnitude. At the present time there is no way to transport the oil from those frontier areas to the consumer market. Both the Arctic Islands and Mackenzie Delta oil would have to be moved by a pipeline that would cost billions of dollars to build, providing one reason Canadians would like to see the Alaskan North Slope oil

moved by a pipeline through Canada, i.e., their oil in northern Canada could be integrated with that of the North Slope and transferred to market through one pipeline system. If the discovery on Sable Island is of sufficient quantity, it could be moved to market by tanker.

After our own domestic oil, authorities agree Canadian oil is, from the standpoint of national security, the next best source enhanced in part by the fact that a major portion of Canadian exploration and production has been done by American capital. The NPC outlook for Canadian oil supply is set out on the following table.

ESTIMATED CANADIAN PRODUCTION CAPACITY AND PRODUCTION

(Thousand Barrels per Day)

	1970	1975	1980	1985
Producing Capacity				
Western Canada	2,275	2,600	2,400	2,250
Frontier Areas	0	0	400	1,200
Tar Sands	45	65	375	1,000
Production				
Western Canada	1,316	2,005	2,185	2,200
Frontier Areas	0	0	400	1,200
Tar Sands	33	65	375	1,000

Source: NPC Volume II - U.S. Energy Outlook, November 1971.

While Canadian supplies are most attractive to the U.S., other foreign sources are projected to account for most of our increased imports to 1985. As of January 1, 1972, it was estimated by the National Petroleum Council that in the non-Communist world proven crude oil reserves totalled 463 billion barrels. Assuming favorable political and economic conditions

the oil industry is projected to be capable of finding and developing some 450 to 550 billion barrels of additional reserves outside the U.S. in the next 15 years. Thus, the non-Communist existing reserves coupled with resource base remaining to be discovered should be sufficient to meet requirements up to 1985. It is anticipated that supplies will tighten as the reserve production (R/P) ratio drops from 27 in 1972 to between 14 and 19 in 1985. The R/P ratio indicates the number of years that these reserves could be produced at that rate.

The projected increase in productive capacity in Latin America will be only about 1.7% annually up to 1985 whereas the projected increase in demand for petroleum in Latin America is 4.7% annually to 1980. On this basis the U.S. will be getting fewer imports from Latin America and more imports from the Middle East and Africa because Latin America will be requiring more of their own production.

The Chase Manhattan Bank in a recent study entitled, "Outlook for Energy in the United States to 1985" forecast that the breakdown of petroleum imports in 1985 will be as follows:

Latin America	1,500,000 b/d
Canada	2,100,000 b/d
Middle East and Africa	11,600,000 b/d
	15,200,000 b/d Total

This report indicated that we will be getting about 200,000 b/d less imported oil from Latin America in 1985 than we are now getting in 1972. The Canadian imports are projected to increase about 1,200,000 b/d over 1972 levels. The majority of all additional imports will come from the Middle East and Africa which is projected to be over 11,000,000 b/d above the present

imports from that region. Over the past 20 years political and military action has disrupted all or part of the oil supply from that area; including, the civil war in Nigeria, the Seven-Day War in Egypt, the closing of the Suez, the closing of the TransArabian Pipeline, and the nationalization of the oil industry in Iran.

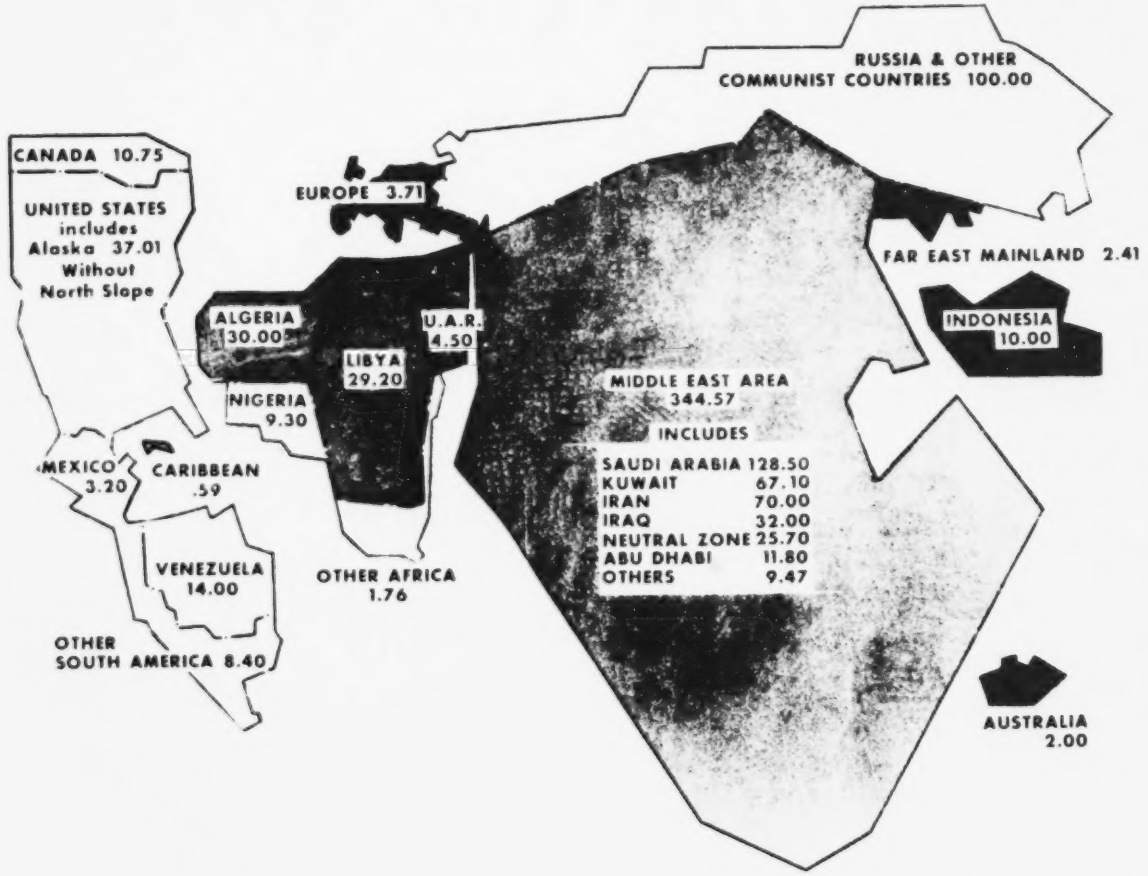
The Chase Manhatten projection is not unique. A similar conclusion was reached by the Office of Oil and Gas, Department of the Interior, as summarized on Tables X-1 and X-2.

A brief discussion of future price trends for oil is pertinent, because the relative price of U.S. and foreign oil determines the value of import "tickets," which in turn determines the effectiveness of some of the options for increasing supply of low sulfur fuel oil. As already noted, "ticket" values are now about $0.50/bbl, substantially lower than they were a few years ago. In part, they are lower because foreign oil prices have risen fairly rapidly, while domestic prices have gone up only a little. We expect foreign oil prices to continue to rise rapidly over the next decade, although there is a school of thought (led by Professor M. A. Adelman of the Massachusetts Institute of Technology) that predicts foreign prices will drop.

What will happen to domestic oil prices is less easy to project. If the present slow trend of increase continues, foreign and domestic prices will converge in just a few years, and, of course, ticket values will be nil. On the other hand, if imports continue to be restrained under MOIP, there is no supply and demand reason why domestic oil prices cannot maintain a substantial spread over foreign, which would mean a substantial

WHERE THE OIL IS—

WORLD TOTAL 611.40 BILLION BBLS.
AS OF JANUARY 1, 1971



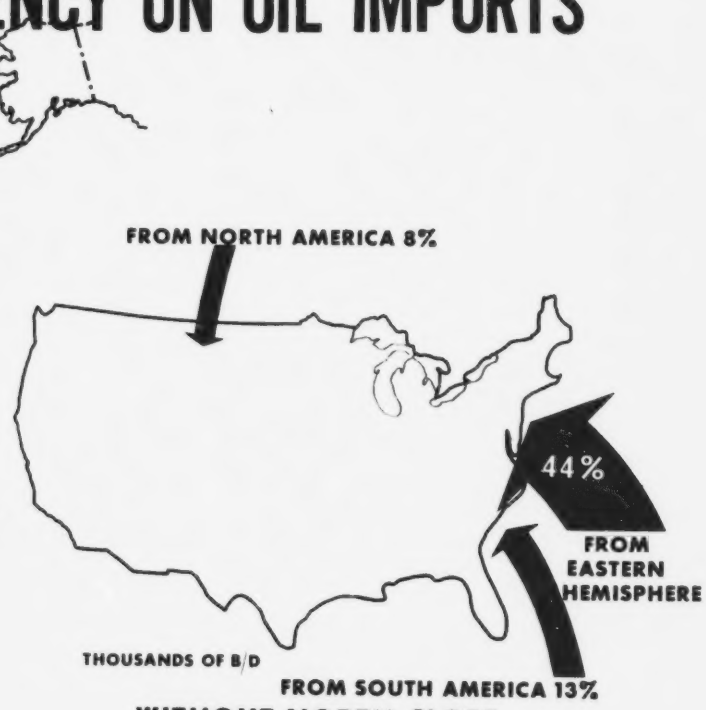
If geography reflected the reserves of oil in the ground, the map of the world would look like this.

Office of Oil and Gas
Department of the Interior
March 1971

1985 U.S. DEPENDENCY ON OIL IMPORTS

WITH NORTH SLOPE

U.S. PRODUCTION	9,165
ALASKA NORTH SLOPE	2,000
NORTH AMERICAN IMPORTS	2,200
SOUTH AMERICAN IMPORTS	3,500
EASTERN HEMISPHERE IMPORTS	9,585
TOTAL SUPPLY	26,450



WITHOUT NORTH SLOPE

U.S. PRODUCTION	9,165
ALASKA NORTH SLOPE	--
NORTH AMERICAN IMPORTS	2,200
SOUTH AMERICAN IMPORTS	3,500
EASTERN HEMISPHERE IMPORTS	11,585
TOTAL SUPPLY	26,450

Office of Oil and Gas
Department of the Interior
Rev. March 1972

ticket value. Of course, higher domestic oil prices would have the advantage of increasing domestic supply of oil. There are other reasons, though, why the government may not permit a spread to continue. Inflationary pressures on our economy are likely to be with us for a long time. So, in order to limit inflation, the government may well choose to keep domestic prices from rising above foreign, and the government could even go so far as to keep domestic prices below foreign. A further disincentive to maintaining a substantial spread between domestic and foreign oil is that high domestic prices tend to encourage foreign producing countries to raise their prices. The result of all this is that one should consider the future value of import tickets as being quite uncertain.

When one looks at the combination of rapidly rising foreign imports and rising foreign oil prices, the result is no less than frightening. The amount we will be paying for foreign oil unless we change our course becomes very large, even in just a few years, and the balance of payments outflow which results is enormous. (James Akins, U.S. State Department, in testimony before the Senate Commerce Committee, October 1972, estimates <u>at least</u> $10 billion per year by 1980 if we do not change our course.) Also, our dependence on foreign oil becomes so great as to pose critical national security as well as supply security risks. In our view, this crisis of dependence on foreign oil is the worst of all the energy crises we face as a nation -- balance of payments consequences alone will soon become almost intolerable.

What this crisis of dependence on foreign oil means is that later in this decade, although not necessarily very much later, we will have to change our course in energy and develop adequate additional domestic supply to keep foreign dependence within bounds. Since there is a long lag time in most measures which would achieve adequate domestic supply, and since we have not yet changed our course, there is likely to be a period in the late 1970's when we do not have enough domestic energy, and cannot tolerate importing enough energy (mainly as oil) to meet projected needs. This is, in our view, what will ultimately limit low sulfur fuel oil supply (as well as supply of all petroleum products) later in the 1970's. This is also a major reason why we emphasize domestic crude oil supply in the discussion which follows.

B. Analysis of Existing Regulations

One of the most important regulatory influences on crude oil and fuel oil supply in recent years has been MOIP, which, among other things, has in conjunction with state prorationing held domestic oil and most product prices well above world levels and has guaranteed a market for at least part of any oil discovered. Also important has been state and federal leasing of oil properties, which has led to very large oil discoveries in Alaska and substantial discoveries in the U.S. Gulf. Of current importance but relatively little historical influence is the Economic Stabilization Program. These and other lesser influences are discussed in the sections below. For clarity, this and subsequent discussion considers crude oil (which can be burned as fuel or converted to fuel oil) and fuel oil separately.

1. Crude Oil Supply

Whether MOIP, by keeping U.S. prices up and assuring a market for at least part of domestic discoveries, has led to substantially greater supply of domestic oil has been widely debated -- for example, some say that the huge discoveries of oil on the North Slope of Alaska would not have been made were it not for MOIP. Others say the discoveries would have been made anyway even without MOIP because the potential was so great in that area. Undoubtedly, the program has resulted in greater supply, but whether it has been worth the substantial cost to the U.S. public is a question that authorities in the field have not been able to agree on.

As it was originally structured in Districts I-IV, with imports essentially a fixed proportion of domestic supply, MOIP would have been less successful in holding up domestic prices had it not been for state prorationing. State "market demand prorationing" in Texas and Louisiana effectively kept surplus domestic crude off the market while MOIP limited imports. Thus, domestic prices could rise almost without economic restriction. Now, though, prorationing has little effect, because both states are operating at 100% of production capability. Even at 100% capability, domestic production is not maintaining its former proportion of supply.

State and federal leasing has been discussed in some detail in Chapter VIII. It bears repeating here that additional leasing by the State of Alaska has been delayed by environmentalists blocking of the Alaskan pipeline in the courts. It is also important to repeat that offshore leasing in the Gulf by the U.S. is already proceeding rather

rapidly, so there may not be as much room to accelerate as some would like to think.

Phase III price controls, and whatever similar controls that are virtually certain to follow, will play an important role in future crude oil supply. How Phase III will be interpreted for oil is still unclear. If it is interpreted such that only small price increases can occur, and this appears to be the more likely interpretation, incentives to find and develop new or high cost oil will be less than if substantial increases were allowed. Along with price controls, price surveillance under MOIP could be important.

State oil conservation regulations have added substantially to crude supply, although no precise figures are available. Prorationing, unitization regulation, maximum recovery limits, and various other regulations are involved here. Much progress has been made in this area, so there is probably only limited opportunity here for improvement in the future.

Other regulatory influences on crude oil supply have been relatively small in recent years. There has been substantial research on supplemental or synthetic sources of crude oil, specifically from shale and coal. However, no commercial production is expected from either for some time unless new incentives for such production are created.

2. Fuel Oil Supply

MOIP, obviously, has not resulted in adequate fuel oil supply right now, especially on the East Coast but also in the Middle West and

the Gulf Coast as well. This situation, however, is not entirely attributable to MOIP but stems from the complex interaction of a large number of factors including a rapid and mainly unanticipated increase in demand. However, the residual oil exemption in District I has accelerated the already existing trend toward reduced domestic yields of this product and thereby has reduced the ability of the industry to respond to rapid changes in demand.

In Districts II-IV, the growing number of petitions to import residual fuel oil is an indication of tightening supply conditions. Awards by the OIAB are a questionable vehicle for meeting these supply problems and have not materially increased the supply in the past.[1/] Substitution of OIAB awards for a defined program represents an undesirable administrative mechanism.

From the standpoint of national security, various aspects of MOIP relating to fuel supply would appear somewhat counter to the basic objective of minimizing reliance on insecure sources of supply. In particular, the District I residual fuel oil exemption has resulted in nearly total dependence on imported residual oil for the East Coast region. On the other hand, the national security consequences of District V bonuses for low sulfur residual fuel oil manufacture appears to be minimal. In crude-short District V, oil would have to be imported in any case to make the needed

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1/ Similarly, with regard to No. 2 oil, the special import program for independent terminal operators (50,000 bbls/d in 1972) in District I has not had a significant supply effect to date because it represents such a small portion of the total demand in that area. The removal of controls on imports of No. 2 fuel oil into Districts I-IV during the first four months of 1973, however, may provide relief for that period.

products; therefore, though it does increase domestic low sulfur fuel oil supply, the bonus affects only the relative allocations which are given to the West Coast refiners.

Another adverse consequence of the District I residual oil exemption has been to promote -- more than any other program encompassed in MOIP -- the exportation of U.S. refinery capacity. To a lesser degree, the special No. 2 fuel oil program and the removal of import restrictions on LPG from Western Hemisphere sources have also contributed to this situation. While there is no way of eliminating the need for imports to meet the petroleum needs of the U.S., the adverse security consequences of dependence upon imported oil could be reduced by limiting imports to the extent possible to crude oil, thereby allowing refining operations to take place in the United States. Generally, crude oil is more readily available around the world than products in an emergency.

A collateral effect has undoubtedly been the discouragement and postponement of investment in promising long-run domestic energy sources, e.g., coal and nuclear power. Residual fuel oil is used by large consumers, e.g., utilities, industry and large space heaters, who frequently have sufficient capital resources to enable a choice between competing fuel sources. Thus, insofar as MOIP programs either exempt residual oil imports from quota levels or promote the domestic production of residual oil at competitive prices, these consumers will tend to avoid the investments necessary to use either coal or nuclear power in favor of residual oil.

This problem is compounded by environmental considerations, since the economics of low sulfur residual oil use are considerably more

favorable at the present time than attempting to adapt to the use of coal with appropriate facilities to reduce harmful emissions. However, it should be recognized that, at least until 1975, there is really no practical alternative to the use of low sulfur residual oil in those regions where stringent pollution regulations are in effect.

From a balance of payments standpoint, it is obvious that any program permitting oil imports will engender adverse balance of payments consequences. However, given the necessity of imports, there is no way of avoiding adverse balance of payments consequences. But, again, these adverse consequences can be minimized by limiting imports, insofar as possible, to crude oil rather than higher cost products.

On the plus side, the various import measures relating to residual fuel oil (and No. 2 fuel oil) supply have unquestionably had a beneficial effect on prices to consumers because of the lower cost of the foreign products. The District I residual fuel oil exemption has kept the price of this product at a considerably lower level than if imports had been restricted. The independent terminal operators and fuel distributors in District I maintain that even their limited access to imports of No. 2 fuel oil has been a beneficial effect on home heating oil prices on the East Coast, although this benefit has been eroded by substantial price increases by the principal foreign suppliers of No. 2 fuel oil.

Phase II also apparently played a part in current heating oil (No. 2) shortages, by freezing heating oil prices at their summer lows. Many refiners claim this makes it uneconomic to make heating oil, and have either made gasoline or run less crude instead of maximizing heating

oil as they usually do in the winter. Whether this problem will be alleviated under Phase III remains to be seen -- major refiners have raised heating oil prices, and the Cost of Living Council is about to investigate these increases.

Other regulation has had relatively little influence on fuel oil supplies in recent years.

C. Regulatory Means of Increasing Crude Oil Supply

1. Increasing Domestic Crude Oil Supply

There are relatively few purely regulatory options for increasing future domestic crude oil supply. The most significant are first, accelerated leasing, and second, letting prices rise under Phase III, both while continuing to limit imports under MOIP.

Accelerating and regularizing the leasing of offshore lands is one of the more obvious ways to increase domestic crude oil supply, although, as already noted, leasing is already proceeding at a fairly rapid pace. Only about 1% of federal offshore area has been leased. For comparison, about 20-25% of this area is estimated to have favorable oil prospects. Moreover, the U.S. Continental Shelf out to a depth of 200 meters can be drilled with technology now at hand.

Oil and gas lease sales in the 1960's were sporadic, with the result that promising drilling prospects for the industry did not become available as fast as they might have with a more regular schedule. The response of the industry to those sales which were held gives every indication that additional leasing would have been as favorably received. For example, in every general lease sale held by the Interior Department beginning in 1967, total bonus bids to the U.S. Government exceeded $500

million, with the last in December of 1972 bringing an all time record of nearly $1.7 billion.

The Gulf of Mexico is the logical focal point of the Department of Interior's current leasing plan, because potential crude oil (and gas) reserves could be enormous. Offshore Louisiana is already a prolific producing area; offshore Texas has shown less promise to date, although significant potential is believed to exist.

From the standpoint of location, the Atlantic OCS is an obvious source of providing substantial supply increases of both oil and gas for the East Coast, already heavily dependent on imports of foreign oil and likely to become also dependent on imports of foreign gas (LNG) in the future. While East Coast states will benefit from the development of potential reserves in the Gulf of Mexico, they must share that potential with other areas of the country which rely on Gulf Coast sources. By contrast, all of the Atlantic OCS potential would presumably be available for local East Coast markets.

Though not as strategically located, the potential of the Gulf of Alaska could also be very large.

In offshore California, leasing was halted by the major oil spill occurring in January 1969, and further drilling on some 35 leases granted prior to that time has been suspended. Interior's authority to order suspension of operations is now in the courts. Thus, the situation is uncertain in California at the moment. However, the same basic considerations dictating the leasing of Atlantic OCS lands also favor a resumption of leasing of the California OCS and extension of this leasing,

assuming sufficient industry interest and favorable geological data, to other Pacific Coast offshore areas. It should also be noted that the Pacific states are effectively not connected by pipeline to Gulf Coast sources of supply and hence, lacking a means of transportation, cannot benefit from resources discovered in the Gulf of Mexico.

A corollary issue connected with offshore leasing concerns the leasing method which will best promote early and rapid exploration and development of the OCS lands. Interior's present method of awarding leases is through cash bonus bidding, with a fixed royalty (16-2/3%) required on any ensuing production. This method has been criticized on the ground that it siphons off large amounts of capital in bonuses which might otherwise be expended on exploration and development. Another criticism is that the bidding process is restricted to larger operators able to afford the cash bonus plus finance subsequent drilling activities, thereby discouraging smaller operators with less financial resources.[1/] This is said to deter the widest possible participation in offshore development. Alternative methods have been suggested, the two principal ones being: (1) a deferred bonus-fixed royalty system under which portions of the bonus would be due at various times in the future; and (2) a royalty bidding system, with no bonuses.

Both of the suggested alternatives could make available large sums of capital for exploration and development that otherwise would be committed to bonus payments. However, Interior takes the position that

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1/ To date, a number of smaller operators have participated in offshore leasing and exploration in joint ventures with other companies.

these methods would result in less incentive for full lease development and recovery of resources. This danger is considered particularly great in the case of royalty bidding which, Interior fears, would be conducive to speculative leasing by parties with no intention of exploration and development and also to premature abandonment of leases. However, even in the case of the deferred bonus alternative, the fact of less "sunk" cost could reduce the incentive of the operator to obtain maximum production.

In testimony before the Senate Interior Committee on June 19, 1972, then Assistant Secretary of the Interior Harrison Loesch defended the present cash bonus bid-fixed royalty system as the best of the possible alternatives and said Interior does not currently plan to change this system unless directed to do so by Congress.[1/]

Letting crude oil prices run free under Phase III (or its successor), while continuing to limit imports under MOIP, would certainly result in greater supply of conventional crude oil. And, if prices ran far enough, to say over $5/bbl (in 1973 dollars), supplemental (synthetic) oil would likely become economic. The amount of new conventional oil that would be found at higher prices is impossible to quantify, but is probably very large. The potential amount of supplemental domestic oil, mainly from shale or coal, is almost unlimited by shale or coal supply. However, in the case of shale, availability of water (needed to process shale oil)

1/ Statement of Harrison Loesch, Assistant Secretary for Public Land Management, U.S. Department of Interior, before Senate Committee on Interior and Insular Affairs, on leasing and disposal policies for energy resources on public lands.

may limit, and environmental problems may limit both shale and coal supply. Supplemental oil supplies ultimately will have to play a major role in our energy picture, and much research and attention has been given this subject. We will not labor this complex supply alternative here, however, because the massive subsidies or other special incentives needed to develop supplemental oil (barring raising crude oil prices) can only come from legislative action.

Other regulatory means of increasing domestic oil supply include granting import quota "tickets" under MOIP to those who find new oil and to those who produce otherwise uneconomic oil. This approach has been promoted, especially by independent producers, at various times in the past. Potential would be limited both by availability of tickets, and by the uncertainty in future ticket values discussed earlier.

2. Increasing Foreign Crude Oil Supply

Longer term, other than Canada and possibly selected other Western Hemisphere countries, we do not recommend regulatory measures to increase foreign oil supply. The option of letting prices run up under Phase III or its successor, and then granting Canada special preference under MOIP would encourage both conventional and supplemental oil from that country. Basically, the discussion here parallels that for the U.S. above, except that supplemental oil would be from tar sands, supply of which is not limited by water availability and probably not by the environment.

Short term, there is probably no alternative to increasing foreign oil supply by simply increasing quotas under MOIP. These quotas could be phased out over time to meet longer term objectives.

D. Regulatory Means of Increasing Low Sulfur Fuel Manufacture

1. Increasing Domestic Manufacture of Low Sulfur Fuel

An obvious regulatory option for increasing domestic manufacture of low sulfur fuel oil (and naphtha) would be to either hold all residual fuel oil imports at present levels, or to scale down imports over a period of time under MOIP. Concurrently, domestic fuel oil prices (and naphtha) would have to be permitted to rise under Phase III (or its successor) to make domestic manufacture attractive. In this option, crude oil imports would have to be increased, of course, and additional refining capacity devoted to production of residual fuel oil.

There are a variety of other options that have been studied and/or proposed to specifically encourage domestic manufacture of fuel oil (and naphtha). Most involve using "ticket" values under MOIP in some way as an incentive to make fuel oil or naphtha domestically. The two most important are extending the "bonus" approach now in effect in District V to the rest of the country, and the so-called "drawback" approach. The first, as already discussed, simply grants import tickets for manufacture of low sulfur fuel oil on a one barrel for one barrel ratio. Thus, the ticket value is a direct subsidy for making low sulfur fuel, regardless of what it is made from.

The "drawback" approach, on the other hand, is an attempt to give some of the advantage now accruing to foreign refiners to domestic refiners as well. In this option, the refiner is granted import tickets in direct proportion to the amount of unrestricted products (under MOIP) he makes from foreign oil. Thus, if a refiner makes 20 barrels of residual fuel oil and 10 barrels of naphtha for synthetic natural gas feedstock from 100 barrels of foreign crude, he will receive tickets for 30 barrels more foreign oil. This approach is not as specifically encouraging to low sulfur fuel manufacture as the bonus plan, but it does encourage domestic fuel manufacture as well as domestic refining.

Another type of proposal is the so-called ICOP refinery (Imported Crude Oil Processing), which is special facility to process imported oil in a simple, separate refinery into residual fuel oil, synthetic natural gas, or other products not subject to import restrictions. There does not appear to be much interest in this approach now, presumably because building separate refineries of this type is a less efficient allocation of resources than integrated additions to existing refineries such as would occur with the "drawback" plan.

Another option is desulfurizing of imported high sulfur unfinished heavy oil, which could be encouraged under MOIP and Phase III. This has the disadvantage that, in general, balance of payments outflow from importing an unfinished product, i.e., a <u>partially</u> refined product, is greater than importing crude oil, though less than importing a finished product.

It would certainly be desirable to encourage domestic refining by restraining environmentalist and other opposition to refineries and superports, especially on the Atlantic Coast. However, purely regulatory measures would not seem to contribute much here -- this is a complex mixture of political, legislative, regulatory, and judicial problems largely at the state and local rather than the federal level.

2. Increasing Foreign Manufacture of Low Sulfur Fuel Oil

Longer term, as in the case of foreign crude oil, we do not recommend measures to encourage foreign manufacture of low sulfur fuel, although again, Canada and possibly other Western Hemisphere sources may be exceptions. Foreign manufacture both increases balance of payments outflow and reduces security of supply. Here, Canada, etc. could get special preference in MOIP, with fuel oil prices in the U.S. permitted to run up under Phase III (or its successor) to levels sufficient to encourage Canadian manufacture and export to the U.S.

Short term there may be no choice but to permit imports of low sulfur fuels.

E. Legislative Means of Increasing Crude and Fuel Supply

Present regulatory means of increasing low sulfur fuel oil supply are extremely limited, so new legislation may be needed to increase crude and fuel oil supply. Possible legislative measures fall into two broad categories -- new incentives to increase domestic oil production and refining, and new measures to reduce consumption of oil and its products.

Broadly, legislative incentives to increase domestic crude oil production (beyond what can be achieved within the regulatory framework of oil import policy and price controls) fall within three basic groups -- new tax incentives, direct subsidy of or participation in oil operations, and R&D support. We think the first and third can be effective and are the most palatable politically, providing one adds the qualification on the first that tax incentives apply only to "new" (in contrast to already discovered or "old") oil or to developing of oil supply not otherwise economic, such as higher cost secondary or tertiary recovery oil. In our opinion, the outlook for legislation which applies new tax incentives to "old" oil in addition to "new" oil is rather dim, because this would contribute to inflation, and in the view of some, unfairly enrich the owners of reserves already found. Across the board incentives may be more palatable <u>if</u> the incremental profit accruing to holders of "old" oil reserves were required to be reinvested in exploration.

Tax incentives to increase domestic exploration and production could take various forms, from increasing the depletion allowance to an investment tax credit on exploration expenditures. Increasing domestic production in response to such incentives would almost directly increase low sulfur crude oil availability, because the bulk of domestic oil found in the past has been of low sulfur (sweet) variety).

Direct subsidies or federal participation in exploration, to be effective, would place heavy drains on the Treasury, hence we do not see these as really viable options. R&D support, though it may be somewhat costly, has obvious advantages in such areas as developing supplemental

oil supply (from shale or coal), improving offshore and deep well drilling technology, and improving secondary recovery technology.

Incentives that increase domestic refining could tend to increase low sulfur fuel oil availability, if incentives are structured to particularly encourage making clean fuel oils rather than just to encourage domestic refining in general. Types of legislative incentives that can be applied to encourage domestic refining are fast tax writeoff, investment tax credits, reduced income tax on domestic refining or direct domestic refining subsidies.

The measures indicated above would not tend to discourage short term importing of low sulfur fuel oil or raw materials. Thus, they do not have the problem discussed for import policy where it is difficult to reconcile the long term objective of increasing domestic supply with the short term need for imported supply. In the long term, these measures will increase domestic supply and enable us to reduce imports. In addition to these measures, a tariff or fee on imports may be needed to insure that domestic supply so developed will be used by the consumer.

Legislative measures to reduce consumption of other petroleum products, which would make more oil available for conversion to low sulfur fuel, cover a wide range of possibilities. We do not think rationing is a reasonable alternative longer term. On the other hand, such things as promoting mass transit and requiring better insulation on houses appear desirable and have other important benefits. Ultimately, substantial selective fuel taxes to reduce consumption will probably be needed. Such taxes have the political advantage of generating much needed revenues, but have the major political disadvantages of being unpopular (barring a much more severe energy crisis) and of affecting the less affluent disproportionately.

CHAPTER VI - COST EFFECTIVENESS AND TIME REQUIREMENTS FOR ALTERNATIVE REGULATORY STRATEGIES TO INCREASE LOW SULFUR FUEL SUPPLIES

A. Increasing Low Sulfur Fuel Oil Supply Short Term

Short term (to about the end of 1975), we think the optimal regulatory changes which would tend to increase supply of low sulfur fuel oil are:

1. Raise domestic low sulfur fuel oil price ceiling permitted under Phase III to encourage domestic manufacture of low sulfur fuel oil (Phase III does not control price of imports).

2. Adopt a "bonus" and/or "drawback" plan under MOIP as outlined earlier to encourage domestic manufacture of low sulfur fuel oil in Districts I-IV.

3. Remove import restrictions on low sulfur fuel oil in Districts II-V under MOIP.

4. Offer import ticket bonuses under MOIP for newly discovered domestic crude oil and for domestic crude oil which would otherwise be uneconomic to produce.

Of course, the regulatory agencies involved would be the Cost of Living Council for higher prices, and the Oil Policy Committee for the rest.

The amount of low sulfur fuel oil which would be immediately forthcoming with these measures is likely to be small -- desulfurization capacity is limited both in the U.S. and abroad, so what these measures would do is to encourage optimum use (in terms of fuel oil) of desulfurization and existing refining capacity. The amount of domestic crude oil those measures would bring out immediately would also likely be small,

although some high cost oil might be shut in now that such measures would make profitable.

The additional domestic low sulfur fuel oil generated by these measures in a year or two may also, unfortunately, be small, though imports into Districts II-V might become significant. The reason the effect of two of these measures on domestic supply is likely to be small is the great uncertainty in future ticket values -- refining and particularly desulfurization equipment is very costly and would be unlikely to be added unless incentives can be expected to last for some time. Also, the time between looking for oil and producing it is long, so ticket values which are uncertain longer term may not offer much new incentive to look. Letting price rise is probably less uncertain, but refiners have been faced with so much uncertainty in so many phases of their business that they may be reluctant to invest any large sums they can avoid. Legislation assuring refiners of incentives, whether price or otherwise, would probably change this view, but that is of course not a regulatory option.

The cost to the consumer of letting low sulfur fuel oil prices rise would probably be moderate if the amount of the increase permitted were not excessive. The cost could be substantial, however, if such an increase acted to pull up the price of imported fuel oil. The cost of using tickets as incentives depends on how one views the value of tickets -- if one assumes that ticket values to oil companies get passed on in savings to consumers, then using tickets for incentives has a significant cost to the consumer.

The cost of removing import restrictions, of course, may be increased balance of payments deficits, but short term this may be tolerable.

Another possible cost of increased low sulfur fuel oil supply could be reduced supply of other products such as gasoline.

B. Increasing Low Sulfur Fuel Oil Supply Longer Term

Longer term (from about 1976 on), we think the optimal regulatory changes which would tend to increase supply of low sulfur fuel oil include all the short term measures except removing import restrictions (item 3), plus the following:

1. Accelerate offshore leasing.

2. Limit or reduce imports of low sulfur fuel oil, but on a specified, long-term phased in basis.

Accelerating federal offshore oil (and gas) property leasing will increase crude and potential fuel oil supply, and probably at relatively low cost compared with other domestic options. Also, substantial federal revenues are generated. The main cost involved is environmental, although strict regulation should keep this cost low in the Gulf. Environmental cost of leasing offshore Atlantic and in the Gulf of Alaska, where there has not been the background of experience as in the Gulf, may be higher, although it would seem that strict regulation and care in choice of areas to be leased should keep this cost reasonable compared to benefits. Leasing is relatively slow to increase crude oil supply. It takes several years to find and develop a new field, and then reserves so discovered are produced over a long time frame of 10, 20 or more years.

The benefit of limiting or reducing imports of low sulfur oil longer term is, of course, in balance of payments and security -- when these factors become critical, more oil can be imported as crude than as finished product.

Longer term, unfortunately, using import tickets as incentives to increase low sulfur fuel oil manufacture and to increase crude oil reserves may not be very successful due to the great uncertainty in the longer term value of these tickets.

We did not include letting crude oil prices rise substantially under Phase III or its successor here or in the short term discussion, because this option does not appear to be politically viable. Letting crude oil prices rise across the board, compared to specific incentives for newly discovered oil or oil that would not otherwise be economic, does not appear consistent with solving the currently critical problem of inflation. A specific, controlled increase in price of a single product such as low sulfur fuel oil which is needed to meet pollution control objectives is not in the same category. Given the likelihood of strong inflationary pressures in the U.S. for the foreseeable future, it is hard at this time to see any Administration permitting large increases in domestic crude oil prices across the board.

Barring a large domestic crude price increase, the quantity of low sulfur fuel oil generated longer term by all of the regulatory measures above will likely be limited by availability of domestic crude oil, and availability of domestic crude oil will not be much affected by these measures. As discussed earlier, if we do not alter our present

course on domestic oil, and this is, in our view, mainly a legislative matter, the availability of low sulfur or any other fuel oil may be very limited indeed later in this decade.

C. What EPA Can Do

It is apparent from the previous sections that the regulatory options for increasing low sulfur fuel oil supply are very limited. In our view, it is mainly up to Congress to provide the incentives and the stable investment climate to develop the domestic oil base needed to assure availability of low sulfur fuel oil.

What does this mean for EPA? For EPA, there does not appear to be much that can be done directly. Nevertheless, we think EPA can make a significant contribution to increasing low sulfur fuel oil supply long term by doing the following:

1. Encourage and support legislation now which will eventually increase domestic oil supply. Optimal legislation from the standpoint of both developing low sulfur fuel supply and political viability would seem to be selective new incentives (a) to develop new or otherwise uneconomic oil and (b) to develop supplemental oil supply from shale and/or coal. These incentives would not apply to already discovered oil that is now economic to produce, which would make such incentives more politically acceptable than across the board incentives. Selective new incentives are differentiated from across the board incentives which would increase prices on oil already discovered.

2. Use the influence of EPA as an independent agency to publicize the environmental tradeoffs involved in running short of low sulfur fuel

oil versus increasing our domestic oil supply. In our view, EPA is in a better position than any other agency or group to convince the public that if we don't accept some environmental risk from say offshore drilling, we may face greater and more certain environmental damage from not having low sulfur fuel oil.

3. Use the influence of EPA to try to achieve the goals of environmentalist groups with minimal court or other delay of domestic oil projects. This might take various forms, such as acting as an intermediary, helping other agencies write environmental impact statements, or encouraging controls stiff enough to avoid environmentalist intervention but not so stiff as to kill important energy projects.

4. Use the influence of EPA to tell the story of environmental consequences of domestic energy measures in a balanced and level headed manner, rather than letting the extremists and alarmists of the environmental movement dominate the scene.